Medical Library
MAY 12 1927

The

British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

Including an Epitome of Current Medical Literature
WITH SUPPLEMENT.

No. 3460. SATURDAY, APRIL 30, 1927. **Price 1/3**

Hemoplastin

An Improved Product

HEMOPLASTIN or Hæmostatic Serum, P., D. & Co., is a sterile fluid, composed principally of prothrombin, thrombokinase and anti-antithrombin, ready for immediate use by subcutaneous injection or topical application. It has proved eminently satisfactory in the prophylaxis and treatment of hæmorrhage, particularly in those cases due to defective coagulability of the blood.

With the object of rendering Hemoplastin still more effective, steps have recently been taken to free it from protein, thus increasing the factor of safety from anaphylaxis, or reactions simulating anaphylaxis, and hastening the absorption of the effective dose.

Hemoplastin has not been changed in its essential constituents. It remains the most logical and generally useful blood coagulant, shortening coagulation time to a fraction of the normal without danger of intravascular clotting.

The efficiency of Hemoplastin is established by physiological test before issue.

Supplied in bulbs of 2 c.c. Further particulars will be sent on request.

Parke, Davis & Co. Beak St., London, W.1.

D

Boots Products

TRADE MARK BRAND

STABILARSAN

DIOXYDIAMINOARSENOBENZOL - GLUCOSIDE

Salvarsan Diglucoside supplied in solution form, in ampoules ready for use. More persistent than any other arsenical in its effect on the Wassermann reaction.

TRADE MARK BRAND

BISMOSTAB

METALLIC BISMUTH SUSPENSION

Specially prepared, finely divided, pure Bismuth metal in 5% Glucose solution. Supplied in 5 cc., 10 cc., or 28 cc. rubber-capped vials, ready for use. Painless, potent, sterile and non-irritant.

TRADE MARK BRAND

THIOSTAB

SODIUM THIOSULPHATE SOLUTION

A stable sterile solution of Sodium Thiosulphate, strength 10%. A safe and sure preparation for the treatment of dermatitis and stomatitis following Arsenic, Mercury or Bismuth medication.

GONOCOCCAL VACCINES

Manufactured in the laboratory of the Venereal Department at St. Thomas's Hospital, filled into ampoules or vials and packed in the laboratories of Boots Pure Drug Company Limited.

ACRIFLAVINE
ASPIRIN
ATROPINE
CHLORAMINE-T
CHLOROFORM
HOMATROPINE
INSULIN
PITUITARY-EXTRACT

SOLE MANUFACTURERS:

Boots Pure Drug Co. Ltd.,

Manufacturing Chemists and Makers of Fine Chemicals,

NOTTINGHAM——ENGLAND.

Telephone: 7000 Nottingham. *Telegrams: "Drug," Nottingham.*

A British Medical Association Lecture
ON
ASTHMA IN CHILDHOOD.

DELIVERED BEFORE THE SWANSEA DIVISION ON FEBRUARY 24TH, 1927,

BY

ROBERT HUTCHISON, M.D., F.R.C.P.,
PHYSICIAN TO THE LONDON HOSPITAL, AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

ASTHMA is always an interesting disease, but it is specially interesting in childhood, not only because we meet it then in its earliest and simplest forms, but also because it is then that we have the best chance of curing it. Relatively, too, it is commoner in the child than in the adult, for about one-third of all cases begin below the age of 10 and many start during infancy. Like all the diseases of childhood in which nervous influences play a large part, it is more frequently met with amongst boys than amongst girls.

There are four varieties or types of "asthma" in childhood:

1. The *Spasmodic* type, which presents the classical picture of recurring episodes of the characteristic asthmatic dyspnoea. This type is commonest in older children.

2. The *Hay Fever* type, in which nasal catarrh is the most prominent feature. Such cases are apt to be regarded as simply recurrent "colds in the head."

3. *Bronchial Asthma*, in which there is, at the outset, a good deal of bronchitis, to which spasm of the tubes becomes superadded. Cases of this type are very common, and the attacks are often prolonged.

4. The *Bronchitic* type, which is peculiar to children, especially babies, and in which the asthma masquerades as a pure bronchitis, so that the real nature of the condition is often overlooked. It is distinguished from a simple bronchitis by the suddenness of the onset and subsidence, by the fact that dyspnoea precedes the appearance of physical signs in the lungs, by the comparative absence of fever, and by the presence of an eosinophilia.

Thymic Asthma.—In infancy asthma may be simulated by the rare condition called "thymic asthma," or "para-asthma," as some term it, a spasmodic form of dyspnoea brought about by the pressure on the trachea of a hypertrophied thymus or enlarged bronchial glands. Thymic asthma always begins before the age of 18 months, and is distinguished by the presence of the physical signs of enlargement of the thymus or of the bronchial glands. A screen examination is of great help in the diagnosis.

THE NATURE OF ASTHMA.

The dyspnoea of asthma is attributed, as is well known, to obstruction of the bronchi either from spasm of the muscle or from swelling of the mucous membrane, or from both these acting together. The obstruction, whichever form it takes, may be brought about either (1) through the respiratory centre, or (2) by direct action on the bronchial mucous membrane. We must consider each of these modes separately.

1. The respiratory centre may be affected (*a*) psychologically, (*b*) reflexly, (*c*) by the blood.

(*a*) Amongst psychological influences may be mentioned fright and excitement (both of which are specially potent in determining an attack in children), and suggestion, the part played by which in early life is difficult to determine.

(*b*) The chief sites of peripheral irritation which may affect the respiratory centre reflexly in children are the nose and throat and the alimentary canal. Phimosis would also appear to be an occasional cause.

(*c*) The centre may be affected directly by the blood circulating through it in the way to be described immediately.

2. The changes in the bronchi which lead to obstruction may also be brought about directly and without the intervention of the respiratory centre by the presence in the blood of a specific substance which acts as an irritant. The substance in question is believed to be of the nature of a foreign protein or "allergen" to which the asthmatic subject is "sensitive." Some seem to be born with this sensitiveness, others acquire it, others have it "thrust upon them" by disease or accident.

It may be a constitutional peculiarity, often inherited. Such an inborn metabolic irritability may reveal itself by producing, not asthma alone, but other episodic disturbances such as migraine and cyclical vomiting, as well as skin disorders like eczema and urticaria. Such patients are usually sensitive to several proteins, but the degree and character of the sensitiveness may vary from time to time and may come and go suddenly. Sensitiveness may be acquired as the result of an overdose of a foreign protein. It is said, for instance, that an infant may sometimes become sensitive to egg in consequence of being given large quantities of albumin water, and sensitization after the injection of serum is, of course, well known. Sensitiveness may also be "thrust upon" a patient by an acute illness—whooping-cough seems specially prone to act in this way in children—or by an operation, particularly, perhaps, an operation on the throat.

An asthmatic child, therefore, may be born with an unstable metabolism, or it may have been thrown off its metabolic balance in one of the ways described. Our experience at the Hospital for Sick Children (Great Ormond Street), however, has been that sensitiveness is a factor in less than half of all cases of asthma in childhood, and that even when it is present it is only in a small number that the specific excitant of the asthma can be determined. It would seem, indeed, as if sensitiveness is more often a predisposing condition as regards asthma in children than the actual cause of it.

Where sensitiveness is the cause the protein to which the patient reacts may reach the blood in various ways.

Ingestion.—First, it may be ingested in the form of food. Almost any food may produce a reaction, even—perhaps especially—such common ones as the proteins of eggs and milk. Sensitiveness to food protein is usually inborn, and tends to disappear with time. It is therefore more likely to be a cause of asthma in early childhood than in the later years.

Inhalation.—Secondly, the protein may be inhaled in the form of dust of various kinds—pollen and so forth. This form of sensitiveness is oftener acquired than inborn—though even when acquired there has probably been an inborn tendency to metabolic instability—and is more persistent than sensitiveness to food protein, having less tendency to disappear of itself. It is of more importance in the causation of asthma than sensitiveness to the protein of foods.

Bacteria.—Thirdly, there is some reason to believe that the protein to which an asthmatic patient is sensitized may be of bacterial origin and derived from organisms growing at some seat of chronic infection, of which the commonest is probably the nasopharynx. So-called bronchial asthma is the form of the disease most likely to arise in this way.

The fact that a patient is "sensitized" can often be inferred from his history. Thus one of my patients had attacks only when living on a farm in close contact with animals, whilst another was only asthmatic when living in the neighbourhood of trees. Sensitization to common articles of food or to dust is more difficult to detect, but by the use of the cutaneous test with watery extracts of different proteins the question whether and to what the patient is sensitive can be definitely determined. I think it is advisable to use such tests in all asthmatic children, but at the same time I am bound to say that I have been disappointed in the results of treatment based upon them. This matter, however, will be referred to immediately.

TREATMENT.

Treatment of the Attack.

Treatment of the attack of asthma is much the same as in the adult. Subcutaneous injection of adrenaline (2 to 3 minims) is the best remedy, and acts by antagonizing the action of the vagus and stimulating that of the sympathetic. Morphine, though effective, has to be used cautiously in childhood, and children do not like "fumes."

Treatment of the Tendency.

More important is the treatment of the asthmatic tendency. Here the chief thing to realize is that "asthma" is not a disease of the respiratory system only, but one of the child as a whole, and that treatment must aim at breaking the asthmatic habit, for, as someone has put it, "the best cure for asthma is not to have it."

In the general management, therefore, the patient's whole life must be regulated, and nervous excitement and overstrain particularly guarded against. At the outset the question of "coddling" *versus* "hardening" will obtrude itself, and is not always easy to answer. Whilst we must carefully avoid making the asthmatic child a "hot-house plant" invalid, it must also be admitted that needless exposure to weather, especially fog and damp, is injurious, particularly in the bronchial type, and we must not make a fetish of fresh air. The question of climate also arises at this stage, and we shall be asked whether a permanent change is desirable. As to this it is unwise to be too dogmatic. All we can say is that a warm dry climate is theoretically the best—again especially in the bronchial type—but such a climate is not to be had in these islands. Mere change of locality is highly speculative, and is apt to be only an escape from the frying-pan into the fire. It is true that some patients seem to be much freer from attacks in one place than another, but this may be due to some factor other than the climate—removal, for example, from the immediate neighbourhood of animals. Certainly we should never advise the parents to change their place of residence unless they have satisfied themselves by a prolonged trial that the child is free from the disease in the place to which they propose to move. My usual advice is that they should endure the evils they know rather than fly to others that they know not of. Immunity from attacks is usually obtained at an altitude of 5,000 feet, but this is impracticable as a permanent place of abode, and the attacks recur so soon as the patient returns to a lower level.

Diet is of importance, for experience has shown that improvement often results from the avoidance of "indigestible" things, and the provision of small dry meals with no supper. Carbohydrates should be avoided rather than fats. In children, however, it is not wise to cut down the diet so rigidly as can often be done with advantage in the adult, for the needs of growth have to be provided for, and the child must not be sacrificed to the disease. If tests have shown that the child is "sensitive" to any particular article this should, of course, be banished from the diet, but my experience has been that it is only in exceptional cases that this has much effect on the disease.

Drugs.—The drugs which might be expected to be of use in asthma are those which lessen vagus action and those which diminish the excitability of the respiratory centre. Belladonna and its allies act in the former way, arsenic is said to act in the latter, and there is no doubt at all of the great benefit often derived from them in cases of asthma in childhood. I am in the habit of giving small doses of potassium iodide (especially where there is a bronchial element) along with full doses of belladonna or stramonium and arsenic as a routine. The mixture should be given regularly after meals for prolonged periods, and, so used, often effects great improvement. I have seen this happen too often to have any doubts of the real curative value of such a combination, and, indeed, I regard it as on the whole the best treatment for asthma in children. For the purpose of warding off a threatened attack a full dose of a sedative such as chloral at bedtime is often very helpful. Antipyrine sometimes acts equally well.

Operations.—The question of removing enlarged tonsils and adenoids in asthmatic children will often arise, and if the enlargement is causing obstruction, or if the tonsils are infected, it is best to operate. It is unwise, however, to make any promise as to the effect on the asthma, but benefit is most likely in cases of the bronchial type. On the other hand, I have, like everyone, known several cases in which asthma appeared for the first time after the removal of tonsils and adenoids. Of the effects of cauterization of the nose for asthma in children I have had very little experience.

Vaccines.—A course of vaccines is worth trying in cases of the bronchial type, using for choice an autogenous vaccine prepared (if possible) from sputum obtained during an attack. The results, however, are extremely uncertain, though at least it may be said that the treatment can do no harm. When it is successful—and I have seen cases where it certainly seemed to be—it is always doubtful whether the benefit obtained is due to a raising of the resistance to infection or whether the vaccine has really acted as a desensitizing agent. That, however, is an academic question.

Specific Treatment.

If the child is known to be a "sensitive," removal of the offending agent from his environment is, when possible, always to be advised, though here again definite cure should not be promised. In all such cases, too, it is wise to forbid the use of feather pillows, hair mattresses, fur coats, as well as horse-riding and the keeping of pets, for even if the patient is not "sensitive" to any of these already he may easily become so. These, however, are elementary precautions, and the ideal to be aimed at is a general desensitization which would, so to speak, cut the ground from under the feet of the asthmatic process. Unfortunately, however, the technique of desensitization is still only in the experimental stage, and so far I am bound to confess that I have been disappointed with the results in those cases—admittedly few in number—in which I have tried it. Various substances have been suggested as desensitizing agents—peptone, milk, some of the child's own blood, tuberculin, and cultures of organisms prepared from the nasopharynx or from the bowel. Of these I have had most experience with peptone, usually given intravenously. It is necessary to proceed cautiously, and it is difficult to regulate the dose, for when an asthmatic child is admitted to hospital the asthma usually disappears for a time at least, and so there is nothing by which to gauge the effect of the treatment. On the whole, I think I may say that our experience at the Hospital for Sick Children has not borne out the high opinion of the treatment which has sometimes been expressed. It is quite possible, nevertheless, that when the technique of the method has been more elaborated it may prove to be of great value in those asthmatics in whom sensitiveness exists. It must be remembered, however, as has already been pointed out, that these constitute a minority. Of general *radiation*, a method of treatment recently advocated by Dr. Gilbert Scott,[1] I have had no experience. It seems possible that it acts by general desensitization.

PROGNOSIS.

Finally, a word as to the outlook for the asthmatic child. The immediate attack is, of course, rarely dangerous except in young or delicate infants. Assuming that preventive treatment fails, what chance is there of the attacks being "outgrown"? A very fair chance indeed. I have been agreeably surprised, when following up cases of asthma, seen often several years ago, to find in how large a proportion the attacks have either ceased altogether or have become few and slight, although where the disease has lasted for several years there may be some resulting emphysema and some stunting of growth and development. On the whole, however, the outlook for the asthmatic child is much brighter than the inexperienced would suppose.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, June 5th, 1926, p. 939.

A British Medical Association Lecture

ON

THE TREATMENT OF INFANTILE PARALYSIS.

DELIVERED BEFORE THE MONMOUTHSHIRE DIVISION, DECEMBER 10TH, 1926,

BY

ARTHUR ROCYN JONES, B.S.LOND., F.R.C.S.ENG.,

SURGEON, ROYAL NATIONAL ORTHOPAEDIC HOSPITAL; CONSULTING ORTHOPAEDIC SURGEON, MONMOUTHSHIRE COUNTY COUNCIL.

THERE is no disease more productive of permanent disability in children than infantile paralysis, but fortunately much crippling can be prevented by well guided early treatment. The malady is always among us in a sporadic form, but it is many years since we have had an epidemic comparable to that which has occurred recently at Broadstairs and Leicester. Although infantile paralysis has been recognized for nearly a century, yet most of our knowledge has been accumulated during the last thirty years, mainly through experience gained when the disease has assumed an epidemic form in various countries. In 1905 it spread all over Sweden, and since 1907 there have been periodical epidemics in the United States of America.

Poliomyelitis attacks children in all grades of society and is not necessarily associated with poor housing conditions. There is strong reason for thinking that it is a disease disseminated from person to person, and although the causal agent is not known it is believed to be a minute filterable organism[1] invading the body by the mucous membrane of the nasopharynx. Passing through the mucous membrane the poison gains the blood stream by way of the lymphatics, and, spreading widely, produces a general infection.[2] The main onslaught, however, is directed against the central nervous system, and the motor nerve cells of the grey matter in particular. These last suffer from a threefold attack[2]—namely, mechanical pressure due to oedema and cellular infiltration of the surrounding nervous tissue; anaemia through rupture or constriction of their arterioles; and intoxication due to the direct action of the virus. The site, extent, and virulence of the attack determine the prognosis. Bulbar lesions account for many of the fatal cases; in lesions of the cord alone, which are much commoner, the mortality is comparatively low. Recovery of the motor nerve cells and the disappearance of the paralysis will depend upon whether the initial attack causes complete cellular destruction, in which case the paralysis is absolute and irrecoverable, or whether the cells, having survived the first onslaught, are only temporarily unable to function through persistent pressure from haemorrhagic exudate and oedema, the gradual absorption of which brings relief. Should the exudate, however, become organized and replaced by fibro-cicatricial tissue, then some cells may remain permanently functionless from scar pressure. Although there is no means of determining the nature of the pathological lesion and forecasting the ultimate prognosis, yet it can be said that there is in most patients a strong tendency towards spontaneous recovery.

The symptoms of onset, apart from the paralysis, resemble those of other acute specific fevers. The incubation period is probably from four to ten days, during which there may be some sore throat. The onset is sudden, accompanied by fever up to 103° F., sweating, vomiting, sometimes diarrhoea, and general nervous irritability. One or more limbs are paralysed and flaccid. There are various clinical types, which are classified by Müller as spinal, bulbar, cerebral, and abortive. The bulbar form, as already mentioned, presents an unfavourable outlook owing to possible involvement of vital centres. Several fatal cases of this type have been reported by Feiling,[3] Collinson,[4] and others. The cerebral form (polio-encephalitis) may be confused with meningitis, and being an upper motor neurone lesion is characterized by spastic paralysis. The abortive form gives rise to an interesting group, and was first recognized by Caverly[5] in the Vermont epidemics. Many of the acute initial symptoms are present but paralysis is absent. This form occurs frequently during an epidemic, but owing to the absence of paralysis is apt to be missed, and thus a patient of this type may become an unchecked carrier. If doubt exists, a lumbar puncture will help to clear the diagnosis. The cerebro-spinal fluid will show white cells from a hundred upwards in each cubic millimetre, three-quarters of them being polymorphonuclear. Organisms are absent and the glucose and chloride content are both normal.

The spinal type is the commonest paralytic form, and the following remarks apply mainly to this group of cases. There are three clinical periods of the disease—the acute, the quiescent, and the chronic. The acute stage is ushered in by the symptoms indicated. The limbs are painful and tender to touch, and this may last with declining severity for six weeks. It should be added, however, that frequently in the sporadic case no history of an acute onset is obtained; the child goes to bed apparently well, and the next morning the mother finds one limb powerless and hardly any other symptom to suggest an acute infection. Muirhead Little,[6] in a careful investigation of 115 cases, describes the sudden appearance of paralysis in 43, and in 19 of these the paralysis was the first symptom to attract attention. With the passing of muscular tenderness the second or quiescent stage begins, and with it spontaneous recovery of the muscles. Improvement continues for approximately two years. When recovery comes to a standstill the third or chronic stage has arrived.

TREATMENT.

The virus is present in the mucous membrane of the nasopharynx of infected persons, and therefore contacts should cleanse their throats by gargling three times a day with a 1 in 4,000 solution of potassium permanganate.

First Stage.

The patient should be isolated for four weeks and all the excreta disinfected. In the pre-paralytic stage the intraspinal injection of 5 to 20 c.cm. of human immune serum, obtained from patients who have recovered from the disease, has been advocated, and many cases have been so treated in America and New Zealand. The practical difficulties in providing serum are obvious, although the municipal authority of Melbourne[7] succeeds in obtaining and storing it for emergency. In this stage, too, urotropine[8] has its greatest value. The objection to it is its tendency to produce bladder irritation, but this can be obviated and large doses tolerated by keeping the urine alkaline with sodium bicarbonate and potassium citrate, as recently suggested by Hurst.[9] Urotropine is of doubtful value when the disease is well established.

The pain and tenderness suggest that rest in bed is the best treatment in this stage. The joints should be kept in a neutral position to prevent deformities arising and to relax opposing muscles as much as possible. The child should lie on a flat bed with the thighs slightly abducted, the knees straight, and the feet at right angles to the legs. Sandbags and properly arranged towels will help in maintaining this position. It is a great advantage, however, to put the limbs in splints or plaster gutter casts. A pair of long moulded splints extending from just below the buttock to the back of the heel and then along the sole of the foot will keep the knee and ankle joints in the correct position. A flat bed will help in preventing scoliosis developing if there is paralysis of the spinal muscles on one side. If an upper limb is paralysed the arm should be abducted, the forearm flexed and supinated, and the hand slightly dorsiflexed. These positions of the limbs are the best in the early stages and where it is not yet clear what muscle groups are most affected, but where it is obvious that some muscles are paralysed and their opponents have escaped, then it is well to follow the rule laid down many years ago by Sir Robert Jones[10] and allow greater relaxation of the weakened group—for example, in a drop-foot paralysis with the tendo Achillis unaffected, the foot should be dorsiflexed slightly beyond a right angle and the splint adapted accordingly. No other treatment is necessary during this stage. Massage and electrical treatment of these tender muscles are to be strongly deprecated. They add to the discomfort of the patient and may do infinite harm. But this should be

explained to the parents, who will need reassuring that, having splinted the limbs, the best service to the child is to stand and wait in the early weeks.

Second Stage.

When tenderness has disappeared from the muscles, which is usually somewhere about the sixth week, more active treatment is undertaken. Accompanying the paralysis there are trophic disturbances such as local impairment of the circulation. The muscles are flabby, and the limb is cold and has a blue tinge. The aim of treatment should be to maintain the nutrition of the muscles until restoration of function is established. This is best attained by keeping the limb warm, applying gentle massage and the galvanic current. But it should be clearly understood that neither massage nor electricity has a direct influence on recovery. The most that can be said for either is that they keep the muscles in a state prepared to receive impulses. The splints should continue to be worn and great care taken, during the massage, that the paralysed muscles are not stretched. After two or three weeks of massage the child should begin to be propped up on a bed-rest, and later may be allowed to sit in a chair propped up with pillows. All this is preparatory to getting the child on its feet. By this time the muscles will have shown indications of recovery. Even a small contraction in a muscle can be felt by fingers placed on its tendon, and once a voluntary contraction occurs much can be done to hasten further recovery by graduated exercises. But in doing this great care is necessary to avoid overloading the muscle—for example, if the foot dorsiflexors are paralysed it will not do to let the foot drop and expect the recovering muscle to lift it. The foot should be supported almost to right angles and the patient then asked to dorsiflex. In all these exercises, which are valuable in restoring bulk and tone to the muscles, the burden must be accommodated to the strength of the muscle.

The time when a patient may be allowed to stand will vary with each individual case, but in many with lower limb paralysis it will be from three months upwards from the onset of the disease. If the paralysis has disappeared walking should be undertaken by stages, but fatigue avoided. If some paralysis remains, then walking appliances will be necessary, depending upon the disability—for example, with paralysed quadriceps, peronei, and foot dorsiflexors, a calliper with uplifting toe-spring and outside T-strap and wedge on the boot will keep the knee straight, the foot dorsiflexed and everted at the ankle. By this means all the paralysed muscle groups are kept relaxed. The splints first prescribed should still be worn during the night and the graduated exercises and massage continued. At the end of the year recovery slows down considerably, but it may still go on for yet another year. It is very unlikely that any improvement will take place after two years in a patient who has been continuously under well directed treatment from the beginning. But during this time every care should be taken to improve the general health, for this helps in the recovery. Fresh air and sunshine are useful adjuncts in this respect. Children in the second stage treated at the Royal National Orthopaedic Hospital at Brockley Hill react favourably to graduated sun exposure, but whether it is due to the increased metabolism thereby produced is difficult to say.

Third Stage.

When, in spite of treatment, recovery has ceased and the condition has remained stationary for some months, then the last or chronic stage has been reached. The residual paralysis then represents the extent of permanent disability, but two or three years at least from the onset should be allowed to elapse in a well treated case before this disability is accepted as incapable of further non-operative improvement. This, of course, applies only to cases where deformity has been prevented and where the disability is essentially a paralytic one. Where, however, as frequently happens in the neglected case, deformity is present, this should first be corrected and the overstretched paralysed muscles given some months to recover with the joint in a favourable position.

In the lower limb the commonest deformities needing correction are flexion of the hip and knee, and plantar flexion at the ankle. In flexion of the hip the tightened tensor fascia femoris usually prevents correction, and is best dealt with by Soutter's[11] operation. A longitudinal incision three inches long is made in the long axis of the body with its centre two inches posterior to the anterior superior iliac spine. The tensor fascia femoris is exposed and cut transversely. The muscles and fascia are lifted subperiosteally by an osteotome from either surface of the anterior superior iliac spine. The muscles are pushed back leaving the bare spine projecting, which is then removed by an osteotome. The hip is hyperextended and the wound closed. The patient is nursed for six weeks on half mattresses extending from the head to the buttocks, allowing the hip to be hyperextended, or a plaster-of-Paris cast may be applied from the chest to the ankle. Flexion at the knee can be overcome by extension in a bed calliper, but in intractable cases open elongation of the hamstrings may be necessary. An equinus deformity due to the contraction of the tendo Achillis can often be overcome by dorsiflexing the foot under an anaesthetic, but if this fails open elongation of the tendon should be undertaken, allowing the foot to be brought just up to a right angle with the leg. A varus deformity usually responds to manipulation. Splinting, massage, and graduated exercises should follow the correction of deformity to see if any recovery in the affected muscles takes place. If this happens, the treatment should continue until improvement ceases. But before considering further measures it is worth while allowing this type of case also to be up and walking, properly splinted, for some months.

After sufficient time has elapsed to show that further recovery from the paralysis is unlikely, and where any deformity present has been corrected, there still remain means by which function can be improved, although the paralysis is permanent. Each case presents its own peculiar problem, and therefore principles of treatment only can be mentioned here.

The object of operative treatment is to produce joint stability and dispense with the necessity of wearing an appliance. The methods which find most favour for this purpose at the present time are arthrodesis, tendon transplantation, and tendon fixation, and sometimes two of these methods may be combined.

Arthrodesis was introduced by Albert of Vienna in 1878, when he deliberately ankylosed a flail knee, but now the only common site for the operation is the tarsus; a flail shoulder is occasionally stiffened, but only where there are good scapular muscles to ensure later good movement of the combined humerus and scapula. Arthrodesis of the knee and ankle are seldom performed. For a flail foot where instability is in front of or below the ankle, at the astragalo-scaphoid and astragalo-calcanean joints, the so-called triple arthrodesis is valuable. The astragalus, os calcis, cuboid, and scaphoid are converted into one bone by the removal of their opposing articular cartilages, thus allowing ankylosis to take place by encasing the foot in plaster-of-Paris for eight weeks. But this operation is preferably done at the age of 12 years or over, when the tarsal bones are well ossified. Where the instability is at the ankle-joint, or in cases where the tendo Achillis and tibial muscles are paralysed, producing a calcaneo-valgus deformity of the foot on standing, the best result is obtained by Whitman's operation,[12] which consists of performing astragalectomy and pushing the foot backwards until the fibula overlaps the calcaneo-cuboid joint; the foot is held in a slight equinus position and encased in plaster-of-Paris in this position for three months. A boot with a long heel part to the upper will be required afterwards. One of the cases shown here to-day had a Whitman's operation performed on the left foot for a severe paralytic calcaneo-valgus deformity and a triple arthrodesis for a right flail foot. The patient now walks quite well without appliances, notwithstanding that the right quadriceps is very weak.

Tendon transplantation was first introduced in 1881 by Nicoladoni. Operating upon a case of paralytic calcaneus, he cut the peronei and implanted their central ends into the tendo Achillis. The success of tendon transplantation depends upon the muscle selected for transference and the

manner in which it is grafted. The chosen tendon should be a normal one of good power—a weak muscle is useless. The tendon should be brought down along a gradual path to its new insertion; a sudden twist or turn in its course is fatal to its working efficiency. Where possible it should be inserted into bone. One of the most successful transplantations is the transference of the tibialis anticus to an insertion into the cuboid to act as an everter of the foot where the peronei are paralysed. [In one of the cases shown the peroneus brevis had been grafted into the tibialis posticus to aid inversion of the foot in paralytic valgus.] The transplanted tendon should be relieved of all strain for at least two months, and if the appliance has been worn this should be continued for a little while longer.

Tendon fixation originated in 1898 with Tilanus of Amsterdam when operating upon a girl with paralytic equino-varus. The tendo Achillis was cut subcutaneously, the extensor proprius hallucis was then cut by open section and the central end attached to the extensor longus digitorum, and the peripheral end to the periosteum of the tibia. Codivilla extended the method further, and latterly Gallie[13] of Toronto has brought it prominently forward. The paralysed tendons are converted into ligaments to correct the disability[14]—for example, in paralytic varus the paralysed peronei are permanently fixed to the external malleolus so as to check the deformity. Two grooves are gouged—one on the anterior and the other on the posterior aspect of the external malleolus. The tendons are pulled taut, correcting the deformity, and are buried in these grooves, the longus in front and the brevis behind. The periosteum is brought over and sewn to the tendons, and the foot is encased in plaster-of-Paris for two months. The cast is then removed and the patient allowed to walk without an appliance.

In some cases the paralysis is so extensive that an instrument is a permanent necessity, for no operation is likely to succeed in dispensing with it. One child seen here to-day had not walked for four years owing to complete paralysis of the lower limbs with fixed hip and knee flexion. Soutter's operation was performed on each hip and the knees were straightened by extension. This enabled her to be fitted with callipers and so to walk about. There are exceedingly few cases so badly paralysed that they cannot be made to walk. Even if three or four limbs are paralysed, provided there remains sufficient power in the hands to grasp a pair of crutches, walking is still possible by means of artificial support.

REFERENCES.

[1] Flexner and Lewis: *Journ. Amer. Med. Assoc.*, February 12th, 1910, p. 535. [2] Lovett, R. W.: *The Treatment of Infantile Paralysis* (Heinemann, 1917), p. 2. [3] Feiling, A.: *St. Bartholomew's Hosp. Reports*, 1914, vol. 51, p. 87. [4] Collinson, F. C.: *Lancet*, September 18th, 1926, p. 597. [5] Caverly, C. S.: *Infantile Paralysis in Vermont, 1894-1922* (Burlington, Vermont; State Department of Public Health, 1924), p 30. [6] Little, E. Muirhead: BRITISH MEDICAL JOURNAL, 1900, vol. ii, p. 530. [7] Sinclair, T. W.: *Medical Officer*, November 27th, 1926, p. 251. [8] Flexner and Clark: *Journ. Amer. Med. Assoc.*, February 25th, 1911, p. 585. [9] Hurst, Arthur F.: BRITISH MEDICAL JOURNAL, December 4th, 1926, p. 1079. [10] Jones, Sir Robert: *Surgery of Paralysis*, by Tubby and Jones (Macmillan, 1903), p. 46. [11] Soutter, R.: *Boston Med. and Surg. Journ.*, March 12th, 1914, p. 380. [12] Whitman, Royal: *Annals of Surgery*, February, 1908, p. 364. [13] Gallie, W. E.: Ibid., October, 1915, p. 481. [14] Rocyn Jones, A.: *Journ. Amer. Orthop. Assoc.*, March, 1919, p. 135.

THE TREATMENT OF CONGENITAL SPASTIC PARAPLEGIA BY SYMPATHETIC RAMISECTION.

BY

N. D. ROYLE, M.D., CH.M.SYDNEY,

HONORARY ORTHOPAEDIC SURGEON, LEWISHAM HOSPITAL; HONORARY ORTHOPAEDIC SURGEON, STATE CHILDREN'S RELIEF BOARD, NEW SOUTH WALES.

DR. N. D. ROYLE has contributed to the *Medical Journal of Australia* the full text of a paper on the treatment of congenital spastic paraplegia by sympathetic ramisection. By arrangement with the editor of our contemporary the following abstract appears simultaneously here.

It had occurred to Dr. Royle that in spastic paralysis the resistance offered to the moving group of muscles by its antagonists was due to a fault in reciprocal innervation; and when, subsequently, the discovery was made that the voluntary muscles have a dual innervation, he carried out a series of experiments on goats to ascertain whether any deductions could be drawn as to the part played in the causation of the spasticity by the sympathetic element in this dual innervation. The results were published in the *Medical Journal of Australia* in January, 1924.

EXPERIMENTAL.

It was found from these experiments that animals from which the left abdominal sympathetic trunk had been removed could walk well after a short interval, but exhibited the following peculiarities. When the animals were placed on the back both lower limbs were at first held extended, but after an interval the left limb gradually fell into a more flexed and abducted position than the right. The relaxation time of the left knee-jerk was found to be much shorter than that of the right; the relaxation and extension times were, on the operated side, approximately equal, and the whole movement was more quickly performed than on the right side. In addition, resistance to passive flexion and extension was greater on the normal side. These differences were more evident when the animal was placed under light anaesthesia; and when partially anaesthetized the animals were unable to support weight on the limb from which the sympathetic had been removed. The ability to maintain posture voluntarily in the operated limb, however, was retained, and only disappeared under anaesthesia. If the operation were performed on a decerebrate animal similar changes were observed; and further, the extension of the limbs peculiar to the decerebrate condition, although usually present, was not well maintained on the operated side.

In order to obtain independent testimony as to the accuracy of his conclusions, Dr. Royle called in the aid of an experienced neurologist, Dr. Campbell, who examined one of the goats operated on and fully confirmed Dr. Royle's observations and added several details to those mentioned above. He noted that the muscles of the operated limb were softer, the relative lack of tension being particularly noticeable on pressing the tendo Achillis against the bone; further, although the difference in the knee-jerks was as Dr. Royle had described, the least degree of excitement in the animal immediately caused them to become similar in character on the two sides. Some investigators have failed to verify Dr. Royle's results, but it is to be noted that they have experimented on small animals only, in which the changes are less readily detected than in goats; the results, however, have recently been corroborated by Kuntz and Kerper, who experimented on dogs.

THE FIRST CASE.

These experiments confirmed Dr. Royle in his opinion that the sympathetic system was responsible for the occurrence of spasticity, and he considered it justifiable to apply the operation in the human subject. An apparently suitable case came under his notice in September, 1923.

The patient, a man aged 30, had received a gunshot wound seven years before. The bullet, entering above the left ear, caused extensive laceration in the region of the left central sulcus, and the wound extended across the middle line to the opposite hemisphere. The patient was unable to speak for three months, and unable to walk for two years, after the injury. On examination there was found to be right spastic hemiplegia affecting both limbs, with spasticity in the left leg and foot. On the right side the knee-jerk and ankle-jerk were exaggerated and there was patellar clonus; on the left side there were exaggerated ankle-jerk and ankle clonus. The Babinski reaction was present in both limbs. The patient could walk, but had great difficulty in controlling the right leg, and when bearing on it exhibited a coarse, uncontrollable tremor. He could walk forwards, but not laterally or backwards. Occasional tonic fits occurred, but were readily controlled. The genito-urinary system was normal, but the patient suffered from chronic constipation.

This patient exhibited a change for the better within six hours after the operation. While the right foot immediately fell into plantar flexion after being passively dorsiflexed, the return in the left foot was slow and gradual. The clonus on the right side became progressively less, while persisting on the left. There was an immediate improvement in voluntary movement; the range increased and muscular control was more effective; the patient was able to support himself on the right leg, an impossibility before the operation, and he could walk readily both backwards and forwards; there was also an improvement in balance, and the tremor affecting the right leg disappeared. The limbs showed an increase in size and power, and resistance to fatigue gradually became greater. The chronic constipation was permanently relieved.

This case has been subjected to criticism by Dr. Walsh and Dr. Adrian, and the following statement by Dr. Noble, honorary neurologist and psychiatrist to the Lewisham Hospital, is of interest in this connexion:

"I handed this patient over to several specialists who had much experience in Seale Hayne and other hospitals for functional nerve cases. He was given suggestion, re-education, and other forms of psychological treatment by competent physicians, but without success. He was married to a trained masseuse, who spent much time in re-educative methods before operation, but without result."

The effects of section of the sympathetic as exhibited in this patient, and in the laboratory experiments above described, were subsequently illustrated by some experiments of the late Professor John Irvine Hunter on the wing of the bird. A full account of Professor Hunter's researches was embodied, shortly after his death, in a series of lectures given at University College in January and February, 1925, by Professor Elliot Smith, and they appeared in our first volume for that year.

CONGENITAL SPASTIC PARAPLEGIA.

Dr. Royle considered that the results obtained in his first patient justified the adoption of a similar procedure in other patients suffering from spastic paralysis, among whom were a number of cases of congenital spastic paraplegia. This disease presents two main types—a rigid type and a choreic type. The rigid type falls into two groups: (*a*) in which the patient retains or has developed muscular control, and (*b*) in which no voluntary control is present. Muscular control, even when present, is always deficient and is limited by the difficulty experienced in moving against the rigidity of the antagonistic muscles; and conscious effort increases the rigidity. During rest evidence of rigidity is usually slight and the limbs may appear flaccid, while extensor and adductor spasm and other evidences of defective cortical control may make their appearance when an attempt is made to stand or walk. The range of passive movements in such patients is also limited in varying degrees. Increase in muscle tone is revealed in the abnormal character of the tendon reflexes, provided they are not masked by the rigidity. The relaxation phase is prolonged, and this may lead to the step-ladder phenomenon in the knee-jerk, in which successive contractions leave the leg in a more and more extended position. The Babinski reaction may be present or not. A feature which is present in all cases of spastic paralysis, and often well marked in congenital spastic paraplegia, is inadequacy of inhibition of muscular contraction. For example, a patient may be able to extend the knee, but finds a difficulty in relaxing the quadriceps afterwards. This may be regarded as evidence of a lack of control over the factor determining the maintenance of posture.

In the second group of cases referred to, in which muscular control is absent, the rigidity is part of a general condition in which the patient is subject to extensor spasms resembling those of the decerebrate animal. Postural tone may also be increased. On the other hand, a paralytic condition may be present, due, it may be, to an injury at birth resulting in a more or less complete physiological block.

The choreic type of the disease is characterized by persistent choreiform movements when the patient attempts to move, and in certain emotional states. An increase in postural tone may be present or not, and there may be increased reflex activity when the patient is at rest. There is, however, a rigidity imposed by the patient himself on his limbs, in order, apparently, to minimize the effect of the choreiform movements and that he may maintain his equilibrium on standing.

RESULTS OF OPERATION.

Dr. Royle reports the effect of sympathetic ramisection in twenty-six consecutive cases of spastic paraplegia, complete histories of which are given in the original paper. The operation was in all cases carried out on both lower limbs. The cases were of the rigid type, except one of the choreic type. The accompanying table summarizes the details.

As regards walking, there was a diminution of the disability in all patients except one, who was able to walk before the operation. Sixteen were unable to walk alone, and of these, fourteen learnt to walk within six months. In some cases the improvement was remarkable; thus, one patient, who could only walk with the aid of crutches, was able to play tennis one year after the operation, and a child exhibiting extensor and adductor spasms on attempting to stand could walk without assistance at the end of twelve months. Another notable effect of the operation is relief from the necessity for mechanical support; and ability to walk increasing distances without fatigue is a constant post-operative result. The improvement in walking is necessarily relative, for a patient who has had spastic paraplegia for a number of years cannot be expected to lose all trace of the disease. On the other hand, if the operation is done before contracture sets in, a child may acquire a gait which differs but little from the normal.

All the patients exhibited changes which can only be ascribed to altered tone. The rigidity of the limbs was invariably diminished and resistance to passive and active movement usually disappeared. Both the limitation of range and the resistance to movement in these cases of spastic paraplegia are always to a certain extent structural, and a gradual improvement is observed over and above that directly due to the operation. The excitability of the knee-jerk and of ankle clonus was diminished in the majority of cases. In a few instances the relaxation time remained prolonged, but in all cases it was lessened by the operation. It should be remarked that the complete removal of the sympathetic nerves to a limb does not diminish a patient's ability to maintain a posture voluntarily, and it has been observed in children after ramisection that extensor and adductor spasm may reappear when they are being examined by strangers; this is apparently due to cortical influence set in activity by emotion.

The faculty of balance or increased facility in balance is an invariable immediate post-operative effect, and accounts for the rapidity with which these patients learn to walk. It must be ascribed to an alteration in tone without sensory loss, and the greater power of inhibition which appears after removal of the sympathetic is an expression of the same change.

Almost every patient reported increased facility in performing active movements, a result which is directly due to the operation, since the gain in the range of active movement occurred immediately after it. Physical education, however, effects further improvement, and the improvement may continue for years.

Another important acquisition is the power of inhibition. In one patient, for instance, extension of the knee in the recumbent posture could not be inhibited even when the flexion was assisted by gravity, whereas after the operation the patient could immediately relax the contracted muscle. It is hardly necessary to point out that the presence of deformity and contracture, more especially as affecting the hamstring and calf muscles, militates against a complete result in sympathetic ramisection. Structural changes of this kind need to be dealt with surgically before the full effect of ramisection can become apparent. Further, it should be clearly understood that sympathetic ramisection is not advocated as a cure for spastic paralysis; it merely removes a factor which interferes with the normal physical education of the individual. The essential treatment of spastic paralysis is education of the central nervous system: the muscles themselves do not usually require attention; indeed, their treatment with massage and electricity only tends to stimulate the sensory end-organs, and this inevitably leads to an increase in tone.

SPASTIC CHOREA.

Spastic paralysis complicated by chorea or athetosis was formerly regarded by the author as unsuited for operation by sympathetic ramisection. The following case (No. 26 in the table) illustrates what may be expected in certain circumstances.

The patient, a female aged 19, was unable to walk or stand, and could sit only when supported. Choreiform movements affected all four limbs and the face and tongue; the limbs were under-developed through disuse; the knee-jerks were exaggerated and indicated an increase in tone by the prolonged relaxation

Table showing the Effect of Sympathetic Ramisection in Twenty-six Consecutive Cases of Spastic Paraplegia.

		Before Operation.							After Operation.						
Case No.	Age.	Able to Sit Up.	Able to Stand Alone.	Able to Walk Alone.	Able to Walk with Support.	Able to Balance on one Limb.	Was Patient Constipated?	Mentality.	Standing.	Walking.	Balance on one Lower Limb.	Ease in Performing Active Movements.	Constipation.	Mental Condition.	Time in Months Since Operation.
1	14	+	−	−	−	−	+	−	+	+	+	+	+	+	35
2	6	−	−	−	−	−	++	?	++	+	+	++	++	...	9
3	13	+	+	+	+	−	++	+	++	++	++	+	++	...	4
4	23	+	+	−	+	−	+	?	+	+	++	++	−	+	14
5	5	−	−	−	−	−	+	?	+	+	+	+	+	...	17
6	27	+	+	+	+	?	+	−	−	−	−	−	−	−	28
7	5	+	−	−	−	−	−	+	+	+	+	++	...	...	14
8	38	+	+	+	+	−	−	+	+	+	+	+	...	...	6
9	11	−	−	−	−	−	−	−	−	−	+	+	...	+	20
10	31	+	+	+	+	−	−	−	+	+	+	+	...	+	21
11	7	+	−	−	−	−	+	−	+	+	+	++	++	+	20
12	12	+	−	−	−	−	+	−	+	+	−	+	...	+	17
13	19	+	+	+	+	−	−	+	+	+	++	+	...	+	33
14	14	+	+	+	+	−	−	+	+	+	+	+	...	...	14
15	3	+	−	−	−	+	+	+	+	+	+	+	+	...	4
16	11	+	−	+	+	−	+	+	+	+	+	+	+	...	9
17	3	+	−	−	−	−	+	+	+	+	+	+	?	...	30
18	17	+	+	+	+	−	−	+	+	+	+	++	...	...	18
19	15	+	−	−	−	−	+	?	+	++	++	++	+	+	36
20	30	+	+	+	+	−	−	+	+	+	+	+	...	...	7
21	15	+	+	−	+	−	+	−	+	+	+	+	+	...	30
22	23	+	−	−	−	−	+	+	+	++	++	++	+	...	21
23	14	+	−	−	−	−	+	−	+	+	+	+	+	+	18
24	15	+	+	−	+	−	+	+	+	+	+	+	+	...	17
25	9	+	+	+	+	−	+	−	++	++	+	+	+	...	1
26	19	?	−	−	−	−	−	+	++	++	++	+	−	+	9
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	

Explanation of Signs Used in the Table.—In (1), (2), (3), (4), (5), and (6) the sign + signifies "Yes," the − sign "No." In (7) the + sign signifies normal mentality, the − sign signifies subnormal mentality, and the mark ? indicates mainly a defect through lack of education. The + sign in (8), (9), (10), (11), and (12) indicates the degree of improvement after operation. In (13) it indicates a noticeable improvement.

period; the Babinski test was doubtful. After a bilateral sympathetic ramisection there was an immediate change for the better in tone in the limbs operated on. Six weeks after the operation the patient was able to stand, and a few days later commenced to walk. Eight months after the operation she could stand unsupported for at least ten minutes and could walk alone for a hundred yards. The choreic movements have disappeared from the lower limbs when the patient is not excited, and there is some improvement in the upper limbs also.

Other cases which have been operated on are too recent to merit report.

In the concluding part of his paper Dr. Royle deals with the physical education of the spastic paralytic.

"It must," he says, "be clearly understood that the operation of sympathetic ramisection is not advocated as a cure for spastic paralysis. . . . It merely removes a factor which has been interfering with the normal physical education of the individual, and the essential treatment of spastic paralysis is education of the central nervous system. . . . It is true, however, that the treatment of paralysis of any variety has a peripheral as well as a central aspect, but in spastic paralysis the muscles themselves usually do not need attention; indeed, treatment with massage and electricity only tends to stimulate the sensory end-organs in the muscles, and this inevitably leads to an increase in tone. . . .

"It is sometimes thought that the operation of sympathetic ramisection should confer full and normal use of the muscles immediately, but this is a misconception. We can no more expect the subject of a congenital spastic paralysis to walk immediately after operation than we can a newborn infant. The normal child takes a year or longer to acquire control over the lower limbs sufficient to enable it to walk, and a similar time must be allowed for the spastic child. . . . Even when movements can be performed voluntarily in the lower limbs, control of the various groups is imperfect and the first consideration in education is to establish group control.

"The minimizing of mental effort must next be aimed at. On account of the fact that the patient's muscles have always been opposed by the rigidity of their antagonistic muscles, his mental effort is exaggerated and this tends to the use of unnecessary muscles. This mental habit persists and must be counteracted by teaching inhibition in the groups whose contraction would render the given movement defective."

VASCULAR DISEASES AND THE SYMPATHETIC SYSTEM.

BY

H. A. HARRIS, M.B., B.S.

(Institute of Anatomy, University College, and University College Hospital.)

SIR W. I. DE C. WHEELER's[1] recent report on two cases of thrombo-angiitis obliterans calls attention to problems of great interest. It may be useful to give an account of what is being done by investigators working in the various departments of medical inquiry to interpret the significance of disease in the blood vessels and the part possibly played by the sympathetic nervous system in their causation. In his Oliver-Sharpey lectures Dale[2] gave an excellent summary of the history of our present knowledge,

with special reference to the capillary bed. After submitting Stricker's proof of the contractility of the capillaries, Mayer's proof of the nervous control of the capillaries by the sympathetic nervous system, and Hooker's proof of the nervous control even when the circulation is at a standstill, Dale gives a vivid account of the work of a long series of observers in relation to anaphylaxis and to histamine shock. He discusses the experiments of Ninian Bruce in relation to local vaso-dilator reflexes, and deals in detail with the work of the schools which have grown up around Krogh, Sir Thomas Lewis,[3] and himself. From the historical point of view two incidents may be added. In 1850 Alfred Smee[4] showed preparations of the capillaries of the brain, eye, muscle, and skin, injected with carmine size, and suggested that the variation in the quantity of blood in the capillaries influenced the position of the lens and so controlled accommodation. In 1860 Lionel Beale[5] depicted fine non-medullated nerves coursing with the capillaries in striped muscle. Beale's researches in this connexion deserve special mention, for it is only recently that van den Bergh, McNee, and F. C. Mann have called attention to his brilliant work on the liver. Lionel Beale was "an inarticulately verbose genius" and a protagonist of the Vitalist School, "whose scientific observations were largely ignored as a result of the brilliantly lucid dialectic of Thomas Henry Huxley."

Dale expresses surprise that Rouget's demonstration, in 1873, of the contractile cells which bound the capillary endothelium should have remained unnoticed until comparatively recent times. The Rouget cells are flat contractile stellate cells applied to the outside of the capillary endothelium and encircling the vessel by delicate protoplasmic processes. That these cells had been observed before is evident from the description given by Eberth and Iwanoff in 1868[6]:

> "As the capillaries become larger a delicate tunica adventitia is superadded, which . . . is formed of a delicate network of fine fibrils, composed of the processes of stellate cells lying directly on the vascular wall."

Mayer, Vimtrup, and Dale regard these cells as contractile, sympathetically innervated, and so controlling largely the quantity of blood in the capillary bed. Recently E. R. and E. L. Clark[7] have shown that in the tadpole the capillaries display two types of contraction—the one with a wavy contour of the contracting small capillaries, and the other with a general reduction in the calibre of the larger capillaries. These contractions of the capillary are seen in young capillaries before any Rouget cells are attached thereto. During contraction the capillary is separated from the Rouget cell by a space which can be seen in a profile view. Hence the tonicity of the capillary endothelium of the amphibian larva is independent of the presence of the adventitial cells of Rouget. This finding of the Clarks is of great interest, inasmuch as fifty years ago Roy and Graham Brown said that the capillaries were elastic and contractile in themselves. Florey and Carleton,[8] in a recent paper on the capillaries of the cat, state that they are in general agreement with this view, and that the presence of Rouget cells in sufficient numbers to account for the contraction is doubtful.

An entirely different approach to the question of the nervous control of the blood vessels may be seen in the anatomical school associated with Elliot Smith.[9] His description in 1895 of a branch of the external thoracic nerve supplying the axillary artery, in conjunction with the late Sir William Thorburn's interest in cervical rib, led Todd[10] to a study of the effect of nerve lesions on the arteries. The observations of Wood Jones[11] on the relation of the nerve trunks to the uppermost ribs had also directed particular attention to this problem. Most of this work centred around the endarteritis obliterans which is seen in certain cases of cervical rib. Buzzard,[12] in 1902, was the first to suggest a vascular causation of the trophic disturbances seen in cases of this condition. He stressed the absence of herpes and papillary symptoms in the upper limb, and so concluded that the trophic disturbances were due to a lesion of the first thoracic nerve between the junction of the anterior and posterior roots and its union with the eighth cervical nerve to form the lower trunk. He regarded the spinal nerve itself as the seat of the change. Todd suggested that the trophic lesions of cervical rib were due to a lesion of the sympathetic nerves which run from the first (and sometimes the second) thoracic ganglion to course over the cervical rib on the under side of the lowest trunk.

Numerous papers were published in relation to the vascular symptoms of cervical rib by Todd, Telford, Wood Jones, and others. In 1914 Todd and Kramer[13] surveyed the distribution of nerves to the arteries of the arm. They showed that the subclavian and axillary arteries differ from the other arteries of the arm in receiving a nerve supply direct from the sympathetic chain. All other arteries in the upper limb obtain their nerve supply from sympathetic filaments which have travelled along the spinal nerves and are distributed to the various blood vessels at irregular intervals. The distal and peripheral blood vessels, more particularly those of the hand, receive nerve filaments at more frequent intervals than do the proximal channels. The distribution of nerves to vessels thus corresponds roughly with the distribution of nerves to the muscles and skin. The process of the blood vessel affection appears to be a preliminary period of stimulation of the sympathetic vaso-constrictor fibres followed by a paralysis of the vaso-constrictor fibres with consequent changes in the vessel wall. In short, the trophic lesions are the result, not the cause, of the vascular lesion.

A considerable amount of experimental work has been done in a direction which closely reproduces the trophic lesions of cervical rib. Bechterew summarized the results in 1908, and particular mention must be made of some of the experiments. Lapinski cut the cervical sympathetic in rabbits and showed that the arteries of the ear presented endarteritis obliterans, fragmentation of the elastic coat, and hyperplasia of the tunica media. This was followed by a rapid patchy atrophy of the media. These results were obtained in only seven out of fourteen animals. Cehanovič repeated these experiments, and demonstrated a lack of tone and a delay in the pulse wave in the arteries comparable to that seen in human arterial disease. Fraenkel cut the sciatic nerve in rabbits and dogs and obtained lesions which closely resembled those seen in the anterior tibial vessels in tabes. This was confirmed by Bervoetz. Cyzharz and Helbing repeated these experiments, but did not obtain the vascular changes in all cases. Subsequent to the operation certain rabbits exhibited trophic changes in the dorsum of the foot, and in these alone were found the typical pathological changes in the vessels.

Had the correlation between anatomy and physiology been sufficiently close these experiments would have been readily interpreted. Schiff,[14] in 1854, showed that, allowing an interval of ten days for degeneration, excision of the superior cervical ganglion and of the upper part of the cervical sympathetic trunk did not prevent the vaso-constriction which he was the first to observe in stimulating the great auricular nerve. So Schiff concluded that the vaso-constrictor fibres of the great auricular nerve arise from the spinal cord in the upper cervical region and pass outwards in the roots of the second and third cervical nerves, which send branches to the great auricular nerve. These experiments were not confirmed until over forty years later, when Morley Fletcher[15] repeated them, and showed that some of the sympathetic fibres which reach the ear do so by the ramus vertebralis of the ganglion stellatum, along the vertebral artery to the third cervical nerve, and thence by way of the great auricular. It now became obvious that the discrepancies in the results obtained in the vessels by section of the sciatic nerve were due to the fact that some of the sympathetic fibres reach the lower limb along the femoral artery. Thus in each case the vessels of the limb receive a dual supply of sympathetic fibres—first, from the nerve plexus on the aorta and large vessels, and secondly, from the mixed peripheral nerve.

One of the first clinical applications of this was seen in the work of Leriche, Policard,[16] and their associates. They showed that the mechanical stimulation of the periarterial sympathetic plexus led to vaso-constriction, and that removal of the plexus led to a favourable vaso-dilatation in cases of trophic disturbance. They showed that the reaction of the periarterial sympathetic network varies in degree,

being more marked in some animals, less in others. It is more evident in the brachial than in the axillary or subclavian arteries, more active in the femoral than in the iliac arteries, in the brachial even more than in the femoral. The operative procedure of Leriche has not been taken up with enthusiasm in this country. However, Shaw[17] states that periarterial sympathectomy has been successful in 75 per cent. of cases of causalgia in the clinics of Leriche and Platon. Langley[18] says periarterial sympathectomy in man, so far as it relieves peripheral vaso-constriction, in all probability does not do so by severing nerve fibres running with the arteries to the periphery. Stopford[19] has discussed the possible nerve mechanism in cases of causalgia, and is inclined to consider that the main factor is a reflex peripheral vaso-dilatation of the vessels.

Recently Woollard,[20] in the Institute of Anatomy, University College, London, has confirmed the view that the limb vessels are innervated proximally by nerves direct from the aortic plexus and distally by contributions from the adjacent mixed nerves. Medullated nerves are shown most abundantly on the peripheral vessels, and they end not only by collaterals on the vessels, but also in the adjacent tissues. Woollard suggests that this anatomical relationship may be the basis of the axon reflex. He confirmed the sympathetic innervation of the capillaries, and shows sensory nerve endings of medullated fibres on the large, medium, and small arteries.

The whole problem of a sympathetic afferent apparatus is still in doubt. Trotter[21] has put forward the view that all naked nerve endings register pain, and that pain is the primordial mode of sensation. From it the discriminative forms of sensibility have been differentiated by the progressive degree of insulation of the nerve fibre, which is indicated by the acquirement of a medullated sheath on the one hand and by a special type of nerve ending on the other. Both in the preparations of Kulchitsky[22] and in those of Woollard one is struck by the number of naked non-medullated fibres which wander out into the tissues to form "free" endings.

A different point of view has emerged from the work of Pavlov[23] and Orbeli.[24] Briefly one might say that the Leningrad school of physiology is gradually establishing the existence of the trophic fibres which were empirically postulated by the ancient surgeons. Orbeli regards the sympathetic as containing fibres which regulate the somatic sensory and motor nerves, and determine the amount of material used in each tissue in the body. This work, largely unpublished, cannot be discussed in detail at present. It is mentioned in particular to call attention to the tendency to extend the range of sympathetic innervation to all the tissues in the body.

A tremendous impetus to the study of the sympathetic system followed the revolutionary publications of N. D. Royle[25] and the late John Irvine Hunter.[26] It is not proposed to discuss their application of sympathectomy to spastic paraplegia and allied conditions, but to indicate one result of the revival of the interest in the sympathetic system. The surgery of this system is not new. Nearly all the early operations have been discarded. The value of the few that have survived is still equivocal; and many have produced either indifference or bitter opposition. In 1889 Alexander[27] of Edinburgh resected the superior cervical ganglion of both sides; in 1892 Jacksh[28] resected the vertebral plexus and cut the cord connecting the middle and inferior ganglion; in 1893 Bojdanik[29] performed bilateral resection of the middle cervical ganglion; and in 1896 Jaboulay[30] cut the sympathetic cord above and below the ganglion. All of these operations were done for epilepsy. Jaboulay performed sympathectomy for exophthalmic goitre in the same year, and Jonnesco[31] performed the operation for glaucoma in 1897. Ball[32] of St. Louis, in 1899, removed the superior cervical ganglion for optic nerve atrophy and for glaucoma.

One outcome of the work of Hunter and Royle has been the rapid application of sympathectomy to diseases of the vasomotor apparatus. Adson[33] of Rochester noticed that, following removal of the second, third, and fourth lumbar ganglia in a case of spastic paraplegia, striking and persistent vaso-dilatation occurred in the feet for a period of six weeks. The vaso-dilatation was uniform and uninterrupted, and the feet became hot and dry with suppression of visible sweating. Adson and Brown[34] have published a series of papers dealing with the peripheral vascular disturbances of the extremities. In Raynaud's disease periarterial stripping gives no relief, but combined with lumbar sympathectomy it does. Cervical sympathectomy also causes marked relief when performed alone. In cases of endarteritis obliterans stripping of the vessels, as opposed to the results of some other surgeons, has given no relief. The injection of a foreign protein (typhoid vaccine) has relieved the symptoms in 50 per cent. of the cases, but sympathectomy has not been tried owing to the wide distribution of the concomitant arterio-sclerosis. In thrombo-angiitis obliterans occasional relief from pain has been obtained by the intravenous injection of foreign protein and by Roentgen-ray irradiation of the spine. Lumbar sympathectomy combined with stripping of the external iliac arteries has given marked relief from pain, the condition of the limb has improved, and trophic ulcers have healed. The heat evolution of the limb has increased from 50 to 110 per cent. and the temperature of the limb has increased from 1.5° to 6.4° C. These measurements were made with Sheard's thermo-couple thermometer and foot calorimeter. The results of sympathectomy in erythromelalgia have not yet been ascertained, but medical treatment and surgical stripping of the vessels have not availed.

The work of the surgeons in the Mayo Clinic is interesting in that, first, the thermal response to the injection of a foreign protein gives a ready indication of the degree of suitability for operation in a given case of vascular disease, and that, secondly, the results of sympathectomy in Raynaud's disease and in thrombo-angiitis obliterans are remarkably promising even after an interval of six months. The pain of thrombo-angiitis obliterans is extreme, sleep is fitful, and the patient is rapidly reduced to a mental and physical wreck. Even if such an operation postpones amputation for a few months its performance seems to be justified.

A further dramatic application of the operation of lumbar sympathectomy was witnessed in the following case.

The patient, a woman, aged 34, whose limbs were crippled with a polyarthritis of the rheumatoid type, had failed to respond to medical treatment over a period of six years. The hands and feet were cold and moist with trophic changes in the skin and nails; the interphalangeal joints were all enlarged and there was typical spindle-shaped swelling of the middle and index fingers. There was 25 per cent. limitation of movement in the ankles, 30 per cent. in the wrists, 20 per cent. in the elbows, and 50 per cent. in the shoulders. Pain was a prominent symptom in the hands and feet. As a result of the hopeless condition of the patient bilateral lumbar sympathectomy was suggested by Dr. Rowntree[35] and performed by Dr. Adson. The heat emitted from the feet was increased by 100 per cent. and the temperature by 8° C. I saw the patient before and after operation. The feet became warm, dry, and pink; the trophic changes in the skin and nails were disappearing. Pain had disappeared entirely from the feet and there was a sense of warmth therein. The patient was able to walk several hundred yards within five weeks of the operation. She is a typist, and has requested bilateral cervical sympathectomy, but it was deemed well to wait for six months or a year.

The effect of the operation in this case is equivalent in some respects to a particularly persistent passive hyperaemia of Bier, and one of the treatments employed in the Mayo Clinic in trophic conditions of the hands and feet is the application of an electrically heated glove or sock such as is worn by our Royal Air Force pilots at high altitudes.

Whereas Adson had been a champion of the Hunter-Royle operation for selected cases of spastic paraplegia, the Chicago surgeons Kanavel and Davies have strongly denied its benefits. It is gratifying, therefore, to see Davies and Kanavel[36] adopting lumbar and cervical sympathectomy for cases of vascular disease. They report marked relief of the symptoms of Raynaud's disease after cervical sympathectomy, marked relief of erythromelalgia by lumbar sympathectomy, and complete failure to obtain relief in a case of thrombo-angiitis obliterans. Their conclusions differ from those of Adson and Brown in that the latter operate for thrombo-angiitis obliterans, but not for erythromelalgia. I am tempted to suggest that the case of erythromelalgia might have been an early case of thrombo-angiitis obliterans. The patient was a Russian

Jewish tailor, aged 35. It is true that the arteries of both legs and feet were easily palpable in this case, but the disease may be more marked on the venous side of the capillaries in the earlier stages and limited, like many cases of post-operative thrombosis, to the deep veins of the calf. Pain is often more marked in the calf than in the foot, and is a phenomenon of veins as well as of arteries.

Wheeler's[1] two cases, and the two cases simultaneously published by Smith and Patterson,[37] along with the fact that Telford and Stopford[38] saw four cases in one year in non-Jewish patients, suggest that great care is necessary for the accurate differential diagnosis of the various types of vascular disease of the extremities. It is not sufficient to say "threatened gangrene"—nor, for that matter, is "erythromelalgia" more than a symptom.

Stopford has mentioned that the clinical characters of thrombo-angiitis obliterans were first described by von Winiwarter in 1879, long before Buerger[39] published the standard description in 1924. It may be added that Cornil and Ranvier,[40] in 1860, described "Oblitération des artères par endarteritis et thrombose," and pointed out that a coagulum may precede arteritis as well as arteritis precede a coagulum. Mention must be made of Rabinowitz,[41] who recently claimed to have isolated a Gram-negative, rod-shaped, and beaded organism from a case of thrombo-angiitis obliterans, and to have produced by the bacillus the same lesion in the vessels of the ears and feet of rabbits as that which was present in the leg of the human. Parkes Weber's[42] description of thrombo-angiitis obliterans as non-syphilitic arteritis obliterans of Hebrews no longer holds good. The disease attacks non-Jewish people. It belongs to the group of new diseases such as trench fever, hog cholera, and encephalitis lethargica.

In surveying the field we see that histology, in the work of Smee, Beale, Stricker, and Rouget, has made its precocious contributions. Gross anatomy and clinical surgery have opened a new line of advance determined by the investigation of the trophic lesions of cervical rib and their sympathetic origin. Leriche, Hunter, and Royle have given direction to the newer purposive surgery of the sympathetic system. Dale, Krogh, and Lewis are pioneers of a physiological and clinical line of attack. The protagonists of physico-chemical mechanisms are forging ahead. The whole of the experimental field, particularly as regards the comparative morphology of the sympathetic system, the comparative pharmacology, and the minute and laborious histology, calls for investigators. The histological work of the late Professor Kulchitsky at University College, London, was one of the mainsprings of the work of the late John Irvine Hunter. The recent surgical work in America and Australia is promising. The Russian physiologists are extending our conception of the trophic nerves. The morbid anatomy of the blood vessels, as shown by the divers systems of classification of vascular disease in text-books, is still chaotic. The clinical observations on the vascular diseases of the limb are limited to a few enthusiastic workers. Now, if ever, is the time to write in each hospital ward the following quotation: "Laboratory guides are mostly artificial, are reliable only in some instances, and are the handiwork of man; clinical symptoms are the natural, infallible, unalterable expressions of definite states, and are the ways of God." In each laboratory and dissecting room the text should be: "When the interest flags, strive to become the hero in the oldest of all tragedies—a deduction destroyed by a fact."

REFERENCES.

1 Wheeler: BRITISH MEDICAL JOURNAL, 1927, i, p. 225.
2 Dale: Ibid., 1923, i, pp. 959 and 1006.
3 Lewis and Grant: *Heart*, 1924, xi, 209; and 1925, xii, 73.
4 Smee: *Instinct and Reason*, 1850, p. xxvi, and Plate vii.
5 Beale: *Phil. Trans.*, 1860, cl, 611.
6 Eberth and Iwanoff: *Med. Centralblatt*, 1868, No. 9.
7 Clark, E. R. and E. L.: *Amer. Journ. Anat.*, 1925, xxxv, 239 and 265.
8 Florey, H. W., and Carleton, H. M.: *Proc. Roy. Soc.*, 1926, B, vol. 100, p. 23.
9 Smith, Elliot: *Journ. of Anat. and Phys.*, 1895, xxix, 84.
10 Todd, T. Wingate: *Journ. of Nerv. and Mental Dis.*, 1913, xl, 439.
11 Wood Jones: *Proc. Roy. Soc. Med.* (Clin. Sect.), 1913, vi, 95.
12 Buzzard: *Brain*, 1902, xxv, 299.
13 Todd and Kramer: *Anat. Record*, 1914, viii, 243.
14 Schiff: *Leçons sur la Physiologie de la Digestion*, Paris, 1867, vol. i, 241.
15 Fletcher, Morley: *Journ. of Phys.*, 1897-98, xxii, 259.
16 Leriche: *Presse Médicale*, September 10th, 1917; Leriche and Policard: *Comptes Rend.*, 1920.
17 Shaw, R. C.: *Brit. Journ. Surg.*, 1923-24, xi, 665.
18 Langley: *Journ. of Phys.*, 1923, lviii, 70.
19 Stopford: *Lancet*, 1917, ii, 195.
20 Woollard: *Heart*, 1926, xiii, 319.
21 Trotter: *Med. Sci. Abstr. and Rev.*, 1921, iv, 43.
22 Kulchitsky: *Journ. of Anat.*, 1924, lviii, 152.
23 Pavlov: Jubilee Vol., Moscow, 1925.
24 Orbeli: *Russian Journal of Physiology*, 1926, viii.
25 Royle, N. D.: *Surg., Gyn. and Obstet.*, 1924, 701.
26 Hunter, J. I.: *Surg., Gyn. and Obstet.*, 1924, 721; BRITISH MEDICAL JOURNAL, 1925, January 31st, February 7th, 14th, 21st, and 28th.
27 Alexander: *The Treatment of Epilepsy*, Edinburgh, 1889.
28 Jacksh: *Wien. med. Woch.*, 1892, xlii, 617 and 660.
29 Bojdanik: *Wien. med. Presse*, 1893, 562 and 604.
30 Jaboulay: Quoted by Ball, *Med. News*, New York, July 1st, 1899.
31 Jonnesco: *Centralblatt f. Chirurg.*, 1897.
32 Ball, James Moores: *Trans. IXth Inter. Ophth. Congr.*, Utrecht, 1899, 550.
33 Adson, A. W.: *Minnesota Med.*, 1925, viii, 275.
34 Brown, G. E.: *Journ. Amer. Med. Assoc.*, 1926, lxxxvii, 379.
35 Rowntree, L. G.: Report of the Weekly Staff Meeting, Mayo Clinic, July 28th, 1926.
36 Davies, L., and Kanavel, A. B.: *Surg., Gyn. and Obstet.*, 1926, xlii, 729.
37 Smith, R. P., and Patterson, D. W.: BRITISH MEDICAL JOURNAL, 1927, i, 227.
38 Telford and Stopford: Ibid., 1924, ii, 1035.
39 Buerger: The Circulatory Disturbances of the Extremities, including Gangrene, Vasomotor, and Trophic Disorders, 1924.
40 Cornil and Ranvier: *Histologie Pathologique*, Paris, 1869, vol. i, 554.
41 Rabinowitz, H. M.: *Surg., Gyn. and Obstet.*, 1923, 353.
42 Weber, Parkes: *Quart. Journ. Med.*, 1915-16, ix, 289.

For other references see articles by H. H. Dale, BRITISH MEDICAL JOURNAL, 1923, i, pp. 959 and 1006, and Wingate Todd, *Journ. of Nerv. and Mental Disease*, 1913, xl, 439.

INTRAVENOUS THERAPY.*

BY

HAROLD PRITCHARD, M.D., F.R.C.P.,

PHYSICIAN TO THE WEST LONDON HOSPITAL.

THIS method of treatment has a great many advocates—more, perhaps, on the Continent and in America than in this country—and a great many adverse critics. There are points for and against it, but I think it has now so far justified itself as to deserve a legitimate place in modern therapeutics. It seems better to put remedies intended to act on the blood stream itself, or on some distant organ only reached through the blood stream, directly into the veins, rather than into the stomach, where they must mix with the food and take their chance of being modified by the digestive juices, and finally be subject to the whim of the absorptive mechanism of the alimentary canal. On the other hand, remedies intended to act primarily upon the stomach or intestines are best put there through the mouth. The ease and apparent safety with which intravenous salvarsan injections can be administered has given a great impetus to the use of the intravenous route for purposes of treatment.

The following advantages have been claimed in favour of the intravenous route: that the dose is more precise; that irritation of the gastro-intestinal tract is avoided; that the drug is not altered or destroyed in the alimentary tract; and that drugs act more promptly when given intravenously. I propose to criticize these in detail.

Precision of Dosage.—A medical man prescribes a remedy with the idea of producing a given effect; he desires to give the exact dose which will produce that effect—no more and no less. The appropriate amount is arrived at by giving repeated fractional doses by the mouth, each being well below the full therapeutic dose; it is assumed to be the dose required by the patient in the circumstances which obtain at that moment. The fractional dose can be increased until the desired effect is obtained. It is not practical to give repeated fractional intravenous doses of a drug; therefore the intravenous dose is more liable to err. For example, strophanthin acts powerfully when given intravenously, and a number of deaths from its use in this way have been recorded. It must be admitted that it is more difficult to arrive at the right therapeutic dose by the intravenous method than by giving a drug orally.

Absence of Gastro-Intestinal Irritation.—A drug which directly irritates the gastro-intestinal mucosa might be expected to irritate also the intima of the veins. The word "irritation" is used somewhat loosely in this respect; what is really meant is that the drug causes disturbance during the process of excretion. This applies more particularly to

*Abstract of Presidential Address delivered before the West London Medico-Chirurgical Society.

the heavy metals. One of the worst cases of intestinal irritation I can remember was after the intravenous injection of a mercury preparation.

Stability of Drug.—Many drugs are readily absorbed, unchanged, through the alimentary tract—the iodides, for example. On the other hand, salts of iron and arsenic are only partially absorbed, for some of the dose given is recoverable from the faeces. Many of the gland extracts are destroyed in the alimentary canal—adrenaline is rendered inert when given by the mouth.

Prompt Action.—There can be no question that drugs act more speedily when given intravenously in acute cases, where rapid action is a matter of urgency. In the treatment of more chronic conditions a therapeutic effect is obtained more slowly whichever route is used.

Technique of Intravenous Injection.

The injection must be given as far as possible painlessly; if pain is caused it becomes increasingly difficult to get the patient to submit to further treatment. The vein should be entered at the first attempt, and the injection must never be commenced until the vein is entered with certainty. There is some excuse for not being able to get into the vein, but none for putting the injection into the surrounding tissues, thus giving rise to an area of infiltration, causing pain and local thrombosis, and incidentally failing to achieve the object desired. The needle should have a flat bevel with no shoulder, and a sharp point; it should enter skin and vein with one smooth movement. Needles, as supplied commercially, always have a shoulder and a long thin point. The shoulder is a source of difficulty in getting through the skin, and with a drawn-out point it is difficult to avoid puncturing the further side of the vein. Moreover, with such a needle part of the lumen is apt to remain outside the lumen of the vein, causing leakage into the surrounding tissue.

If the site at the bend of the elbow is chosen, the arm should lie comfortably on, and partly buried in, a pillow with the elbow-joint fully extended. A tourniquet should never be used. With the hand an assistant should compress the upper arm sufficiently firmly to obstruct the venous return, the arterial pulse still being felt at the wrist. The vein can be brought into greater prominence by stroking the forearm upwards. It is not necessary that a vein should be seen, but it must be felt. The vein should be "fixed" by stretching the skin over it between the thumb and forefinger of the left hand. This stretching renders the skin that is stretched partially anaesthetic. The vein on the central side of the fixing point becomes bulbous, and if the needle is now inserted through the upper edge of this stretched area at an angle, it should accurately enter the vein above. On entering the vein the piston of the syringe is slightly withdrawn and on the first appearance of blood the compression is at once released, and the injection proceeded with. In a nicely adjusted injection a thrill can be felt by lightly palpating the vein just above the site of injection while the fluid is running.

The injection must be given slowly, the rate depending upon the degree of concentration of the fluid and its bulk. It should be remembered that remedies introduced by the intravenous route are rapidly brought into contact with vital organs, such as the heart and the central nervous system. Time should therefore be allowed for the blood stream to distribute them.

I do not think it matters where the injection is made. The veins at the bend of the elbow are usually chosen because here they are more accessible and less covered by fat, but the following may be taken: the internal saphenous vein, where it crosses the internal malleolus; the posterior ulnar vein; the radial vein; the femoral vein; the external jugular vein; and, in young infants, the superior longitudinal sinus, though the anterior fontanelle is usually taken; this is a simple and safe procedure if the middle line is strictly adhered to, and the needle inserted into the posterior angle of the fontanelle, for here the superior longitudinal sinus is nearest the skin.

Blood Transfusion.

Blood transfusion is now recognized as a therapeutic measure of the first importance. The donor's blood can be used in the form of whole blood, defibrinated blood, or citrated blood. The one I favour most is the citrated blood method; the transfusion can be given more deliberately, and there is time for the blood to be carried from a distance, if for any reason the donor cannot come to the recipient. The objection to this method is that toxic effects follow the introduction of sodium citrate into the blood stream, and that when transfusion is given as a pre-operative measure oozing is more likely to take place. I argue that, if the right amount of citrate be used and no more, no toxic effects will follow, and the oozing will not be greater than with any other method. The strength I use is 10 c.cm. of a 2 per cent. solution of sodium citrate for every 100 c.cm. of blood. It should be arranged to add the citrate solution by fractions, each fraction being sufficient to prevent clotting of 100 c.cm. of blood. At the commencement of the second 100 c.cm. the requisite amount of citrate solution is added.

The defibrinated method has much to recommend it, but it is, I think, easier to introduce clots into the circulation by this than by the citrate method, for it is not always possible to be quite sure that the blood used is all defibrinated, even after filtering.

Technique.

The simpler the apparatus the better. I have now abandoned the various complicated forms in favour of the simple one on the lines of the ordinary tube and funnel with a glass window near the needle. The blood is allowed to run in by gravity, this force being quite sufficient. A fairly long tube should be used, a few coils being allowed to rest in a vessel of water kept a few degrees above blood heat. The injection should proceed slowly—about twenty minutes being taken to inject 500 c.cm. If the patient is restless and apprehensive the injection may be made easier by first giving 1/6 grain of morphine or heroin. The blood should be filtered through several layers of gauze after citration. Grouping should be carefully performed, and in choosing a donor it is important to take one of the homologous group and not the so-called "universal donor"—Group IV. Many members of this group are not quite negative to the other three groups, and I feel sure it is owing to this that many unpleasant symptoms arise—such as restlessness, dyspnoea, obscurations of vision, noises in the ears, difficulty of speech, fever, shivering, pain in the chest.

I am much in favour of repeated small transfusions—say, 200 to 500 c.cm.—rather than one big one; they are especially useful in the chronic anaemias, and in arresting internal haemorrhages such as from a leaking gastric or duodenal ulcer.

Blood transfusion should never be undertaken lightly. The conditions in which it is indicated are many, and each case must be judged on its merits. It is especially valuable (1) in industrial surgery, where accidents have been accompanied by great loss of blood; (2) in sudden loss of blood from any other cause, such as a bleeding gastric or duodenal ulcer; (3) in any conditions of chronic anaemia where the blood state cannot be improved by other forms of treatment, especially in people around and past middle life—this group would include the toxaemic states, the anaemia here being secondary to the chronic intoxication; (4) as a pre-operative measure, where the red-cell count and haemoglobin estimation are definitely below normal. I deprecate giving a blood transfusion until a full and careful blood examination has been made. It is often indicated for operations on malignant growths where there is a secondary anaemia. In splenic anaemia, where the spleen is being removed, it is advisable to transfuse at the time of operation. I believe the main value of transfusion is due to the stimulus it gives to the blood-forming mechanism.

Saline Infusion.

The infusion of normal saline into the veins is a measure of very old standing, and until salvarsan injections were started, in 1909, it was the commonest form of intravenous treatment. When normal saline is injected intravenously the immediate effect is a rise in blood pressure and a fall in the specific gravity of the blood. This is followed in thirty minutes or so by a fall in pressure and a rise in specific gravity, the effect of osmosis, the excess of fluid introduced into the circulation being rapidly excreted by the kidneys and the skin. If circulatory failure is present, or the heart is acting very feebly, as in old people, this excess of fluid is apt to become lodged in the tissues, particularly in the lungs, thus rendering the patient's last condition worse than his first.

Hypertonic saline was introduced with the idea, of course, of attracting the fluid from the tissues into the vessels. The same physical laws, however, obtain with hypertonic saline as with normal saline; since the vessel wall is permeable to salts the condition which occurs with normal saline is rapidly brought about. It appears, therefore, that blood lost cannot be permanently replaced by a simple saline solution; the benefit obtained is too transient, and saline infusion, therefore, should be regarded simply as a temporary measure. It would seem that the fluid advocated by Bayliss (sodium chloride 2 grams, potassium chloride 0.05 gram, calcium chloride 0.05 gram, powdered gum acacia 5 grams, distilled water 100 c.cm.) is, when prepared exactly as he described, the best injection for loss of blood, where blood cannot readily be obtained. Blood, if it can be obtained, is, of course, better than gum saline. For gum saline to be effective there must be present a sufficient percentage of haemoglobin to carry on the process of oxygenation. Saline infusions, in

addition to their use for temporarily replacing blood lost, are of great value in treating the toxaemic states—uraemia, eclampsia, etc.—the patient being bled and then infused; though here again a better result is obtained by using blood.

INTRAVENOUS MEDICATION.

With regard to the introduction of remedies into the circulation I will confine my remarks to those of which I have personal experience.

Intravenous proteins I have used in the treatment of many disabilities—chiefly spasmodic asthma, infective arthritis, and chronic skin diseases, all conditions in which the nature of the infective agent has not been determined. I should say that about half the cases so treated have been benefited. The proteins used have been T.A.B. emulsion 100 to 500 million, *Bacillus coli* emulsion 100 million, *Staphylococcus aureus* 500 million, and Witte's peptone, 10 c.cm. of a 2 per cent. solution. The most marked reaction is ushered in by a shivering attack, followed by a rapid rise of temperature, with a corresponding increase in the pulse rate; the leucocyte count is raised; headache, malaise, and aches and pains in joints and limbs may be present. The reaction passes in the course of thirty-six hours, and is followed in a favourable case by improvement in the clinical condition. The injections should be repeated four times or so at intervals of seven to ten days. There appears to be a direct relation between the amount of reaction and the improvement obtained; for this reason T.A.B. injection proves the most efficacious. Vaccines when given intravenously act more potently than when given under the skin. I believe that too much has been made hitherto of the specific nature of a vaccine, and that careful preparation is more important than any other single factor.

With regard to intravenous injection of antitoxic serums I have had a very limited experience. Candidly I am rather afraid of this method. I tried it during the war in cases of acute sepsis. I was never sure that the benefit obtained was commensurate with the reaction and upset to which it generally gave rise, and I am still not convinced that intravenous serum has any advantages over the intramuscular and subcutaneous routes.

Of the other remedies I have used intravenously I may mention in particular mercury perchloride. So high an opinion have I formed of this drug that I think every clinician who may be called upon to treat acute cases should keep a solution of it prepared; a suitable dose—1/64, 1/32, or 1/16 grain—could then readily be chosen; the strength I suggest is 1/16 grain of mercury perchloride in 8 c.cm. of normal saline. I have used it chiefly in the following conditions: (1) pneumonia, lobar and lobular; (2) acute staphylococcal infections; (3) chorea, subacute rheumatism; (4) chronic infective arthritis of undetermined origin; (5) encephalitis lethargica.

The treatment of lobar pneumonia has hitherto chiefly been symptomatic. I have from time to time tried various serums, and also typed vaccine, but have not been struck by the results. Quite empirically I started, about eighteen months ago, systematically injecting cases of lobar pneumonia, at whatever stage they came under observation, with 1/32 grain of mercury perchloride. Most of those I have so far treated have responded favourably. Such figures as I have point to an association between the injection of the mercury perchloride and the favourable turn which these cases have taken. I have had quite marked results in bronchopneumonia also, especially in children. Infections by *Staphylococcus aureus* appear to be consistently benefited by injections of perchloride. It is of value in the more chronic infections, such as boils, and in the acute cases, such as acute infective osteomyelitis.

It is a matter of common experience that acute rheumatism under treatment usually clears up within a short time, but the subacute forms, particularly in children, with possible endocarditis and manifestations of chorea, hang fire; the treatment of these patients is unsatisfactory. I have injected a number of these cases with mercury perchloride. Some cases of chorea I have treated have shown improvement in the movements and in the general health, but the fever has continued; in the end the fever too has disappeared. I realize that here, as with pneumonia, one is on very shifty ground, for these things may happen by treating with rest alone. It is only, however, by taking a large number of cases treated with mercury, and comparing them with a similar number treated without, that it is possible to arrive at conclusions. My impression, so far, is distinctly favourable to the mercury treatment.

Cases of chronic infective arthritis, where there is no septic focus which can be determined after careful search, have been improved by intravenous injections of mercury perchloride 1/32 grain every three days. I have also used in such cases sodium salicylate 15 grains with sodium iodide 15 grains in 20 c.cm. of distilled water.

Among many other drugs which have been used intravenously iron cacodylate in half-grain doses every other day is a very efficient way of raising the haemoglobin content. Tylcalcin (a calcium salt of salicylic acid) is a useful form of salicylate for intravenous injection in acute and subacute rheumatism. Acriflavine (40 c.cm. of 1 in 1,000 solution in normal saline) should certainly be tried in septicaemia. Magnesium sulphate (20 c.cm. of a 10 per cent. solution) is of use in controlling the convulsions in eclampsia and uraemia by virtue of its sedative action on voluntary muscle; it also promotes urinary secretion when given intravenously. Urotropine acts more powerfully when given intravenously.

How do these intravenous remedies act? On this point I must at once confess ignorance. It is inconceivable that 1/32 grain of mercury perchloride, for example, can have any antiseptic action when diluted in the blood stream. Perhaps the reaction may be simply that which is associated with putting a foreign substance in the blood stream.

The intravenous route has much to recommend it. By whatever channel drugs are given, they must ultimately reach the circulating blood. Therefore it would appear to be only logical to put them straight into the blood stream. But intravenous medication demands careful handling, and, in using it, one must err on the side of caution.

THE TREATMENT OF RODENT ULCER BY TRICHLORACETIC ACID.

BY

H. LESLIE-ROBERTS, M.D.,

LATELY LECTURER IN DISEASES OF THE SKIN IN THE UNIVERSITY OF LIVERPOOL; CONSULTING DERMATOLOGIST TO THE LIVERPOOL ROYAL INFIRMARY.

BEFORE the days of radium and *x* rays surgeons were often compelled to treat malignant growth by means of caustics. The need of some chemical which would destroy the growth was felt when the growth occurred on the eyelids or the inner canthus of the eyes, or on the side of the nose, or in the nostril, where complete removal of the growth would entail great deformity.

Various caustics were employed, such as solid "potassa fusa," zinc chloride, acid nitrate of mercury, Vienna or arsenical paste, antimony, and pyrogallic acid. The use of these chemical agents gradually dropped into oblivion, since their use was accompanied, not only by severe pain, but not infrequently by accelerated metabolism, whereby a quiet growing tumour was converted into a growth of a more malignant type.

We know why these caustics fell into disrepute; it was because of their dangerous tendency to set up oedema, which was followed by rapid destruction of cells in the superficial parts of the tumours with absorption of toxic products and accelerated growth in the deeper parts. It may be laid down as a general rule that a caustic which increases the water contents of a malignant cell should always be avoided.

The superiority of trichloracetic acid in the treatment of rodent ulcer lies in the fact that its action leads to complete coagulation of the cell contents. The compounds

formed between the acid and the cell contents are non-hydrophil, and therefore do not tend to draw lymph out of the capillaries. In consequence of this property the acid converts the neoplasm into a solid block of dead tissue, which is gradually thrust out by the undergrowth of the healthy living cell of the epidermis. I need not enter here into the biochemical relations of this acid.*

Briefly stated, there are three chloracetic acids, according to the number of hydrogen atoms in the acetic acid molecule replaced by chlorine. The trichloracetic acid possesses in highest measure the characters of the group. Among the most remarkable of these properties is the power of dissolving both water, and oils and fats; trichloracetic acid is both hydrophil and oleophil. Its capacity for dissolving all the simple proteins is shown by its solvent action on solid tissues; skin, the various organs of the body, dead meat, and vegetable matter are reduced in time to a thin almost invisible membrane of connective tissues. Keratin itself is insoluble. Owing to its very powerful oleophil properties, trichloracetic acid is able to penetrate through living tissue. The time taken to penetrate varies in different regions of the body surface. Furthermore, the severity and duration of the reactions of the cutaneous tissues vary with the region occupied by those tissues. The skin covering the sides of the fingers and toes may be described as non-reactive, any reaction that may appear being ephemeral. The acid penetrates rapidly through the normal flexor surfaces of the limbs, and the reactions slowly evolve in the course of many weeks. Penetration through the extensor surfaces is slower, and the reactions are of shorter duration.

Trichloracetic acid finds its highest utility in the treatment of rodent ulcer and all the benign forms of epithelial neoplasms—for example, milium tricho-epitheliomata, fibro-sebaceous moles, and hairy pigmented moles. Rosacea, which may be regarded as a seborrhoeic epithelial neoplastic disease, will yield to a 20 per cent. solution of this acid, which, however, is inferior to sulphur and salicylic acid in the treatment of the disease. Corns and warts yield more slowly, since penetration is difficult, but trichloracetic acid is probably our best remedy for these common benign neoplasms, the only safe alternative being electrolysis.

Method of Application in Rodent Ulcer and Benign Epithelial Growths.

Trichloracetic acid is a crystalline substance which dissolves very readily in water. Three drachms of the acid require from 19 to 20 minims of water to form a concentrated liquid acid holding a small quantity of water in solution. A solid crystal should never be applied, for the sudden melting may result in extension of the acid far beyond the area intended. For safety's sake the adjacent skin should be protected by a smear of vaseline, but this is not always necessary. The applicator should be a glass rod, 1 to 2 mm. in diameter according to the size of the area to be covered. Cotton-wool need not be used. The acid should be applied until the skin is definitely white over the whole area, and this should not exceed three-quarters of an inch. Penetration is accompanied by a smart stinging sensation. When penetration is effected the part is well bathed with water till all the stinging has ceased. In rodent ulcer and solid growths I generally allow three minutes before neutralizing with water. Usually from this time not the slightest discomfort is experienced by the patient; very occasionally a burning sensation has persisted for some hours. For the next twenty-four hours no soap or water should be allowed to come in contact with the treated skin. The dead tissue is to be allowed to separate spontaneously. The time taken for separation of the dry eschar is about twenty-two days. No ointments should be applied. After separation of the primary eschar a minute secondary crust sometimes forms and separates in the course of a few days—usually after four weeks from the application.

*A reader interested in the subject will find a fuller account of these relations in the *British Journal of Dermatology and Syphilis*, August, September, and October, 1926.

A HAEMOSTATIC CLAMP AS AN AID IN DISSECTION OF TONSILS.

BY

L. GRAHAM BROWN, M.D., F.R.C.S.,

ASSISTANT SURGEON, EAR, NOSE, AND THROAT DEPARTMENT, CHARING CROSS HOSPITAL.

THE method to be described is the application to tonsillectomy of the principle adopted in the surgery of other regions of the haemostatic clamping of an organ before incision.

The instrument I have designed for this purpose is made in pairs, a right and left, for adaptation to either tonsil. It has curved, flattened blades, which fit closely over the pillars of the fauces, and are covered by rubber sheaths to avoid injury to these soft tissues. The handles close the blades gently, though firmly, by means of a graduated ratchet, and are bent sharply downwards almost to a right angle in order not to obscure the view of the surgeon during his manipulations.

The Boyle-Davis gag is used, and the patient is in the usual dorsal position, with the head extended well backwards over a rounded sandbag. The operator sits at the head of the table, and employs any of the usual methods of illumination.

The clamp applied to right tonsil.

The application of the instrument is easy, and is well illustrated by the accompanying figure. The chief points to observe are: the lower blade is carefully manœuvred underneath the soft palate and deep to the posterior pillar; the upper blade is then brought into position upon the anterior pillar and its extension to the side of the tongue; the tonsil is next gripped with a pair of tenaculum forceps and pulled through the blades of the clamp until the latter are in the correct position for closure. The sliding action of the upper on the lower blade of the clamp as it closes itself helps in this protrusion of the tonsil from its bed, and hence the operator is chiefly concerned with the accurate adjustment of the blades to the pillars, taking care that they are applied as far backwards from the free margins of the pillars as space will allow. All hold on the instrument can now be dispensed with and the actual dissection of the tonsil begun.

The following claims are made for the use of this haemostatic clamp:

1. The instrument can be applied in almost all cases, the comparatively few failures depending, not on the size or nature of the tonsil to be removed, but on the width of the pillars of the fauces.

2. During removal of the tonsil there is practically no bleeding.

3. The actual dissection is rendered quick, easy, and complete, owing to the absence of haemorrhage and the fact that the tissue between the tonsil and its bed is squeezed into a thin line between the closed blades from which the tonsil readily separates.

4. No bruising of the soft tissues need occur.

5. The method is specially applicable in the case of small, fibrous, or adherent tonsils, and causes a minimum of destruction to the tissues of the pillars and tonsillar bed.

6. The main vessels of supply to the tonsil can usually be readily seen during the dissection, picked up, and ligated if necessary.

7. The after-effects of operation are no greater than those of any other method of dissection.

8. Deep anaesthesia is not such an important factor to the surgeon as when dissection is carried out without the aid of the clamp.

9. With a smaller sized instrument children can be similarly operated upon in place of the guillotine method.

The instrument can be seen at Messrs. Allen and Hanburys (48, Wigmore Street, W.1), and is supplied by them.

LATE RESULTS OF CHRONIC GASTRIC ULCER TREATED MEDICALLY.

BY

L. FORMAN, M.D., M.R.C.P.

IN order to throw light on the late results in cases of chronic gastric ulcer treated by medical methods without operation, the records of patients admitted to the wards of Guy's Hospital from 1914 to 1922 have been examined.

The difficulty of proving the presence of a gastric ulcer is often considerable—the only absolute proof is afforded by handling the viscus at operation or on the *post-mortem* table. The next best confirmation of the diagnosis is the positive result of an *x*-ray examination; failing this, we are reduced to ordinary clinical methods, which, however, are not infallible.

The cases selected from the reports were those in which *x*-ray examination revealed definite evidence of ulceration, usually by the presence of a crater. Four cases were used where a laparotomy had been performed, but no operative treatment on the stomach had been undertaken owing either to the position of the ulcer or to the adhesions around it; in three of these cases the ulcer was high up on the lesser curvature.

During the eight years covered, 79 cases were found which gave *x*-ray evidence of ulceration, and were followed up. The smallness of this number compared with the total admitted with the diagnosis of gastric ulcer is to be explained by the fact that in the reports of some of the cases no mention was made of the *x*-ray findings, and in others no *x*-ray examination was made—for example, in haematemesis. By studying cases with positive *x*-ray findings the position of the ulcer could be defined, and an attempt made to ascertain results of treatment relative to the position.

Each patient was sent a printed form on which questions as to the subsequent history of the abdominal condition were set. Where possible an interview was arranged, when the answers could be supplemented and the stomach screened. From the 79 cases so selected 57 replies were received; 16 could not be used owing mainly to operative intervention. There remained, therefore, 41 cases, and 32 interviews were obtained and the stomachs screened. The results were arranged in the following groups:

A. Absolute freedom from symptoms since leaving the hospital —9 cases (22 per cent.).

B. Marked improvement had resulted and persisted as a result of hospital treatment in 9 (20 per cent.). This group also included those who were very much better and who had a negative *x*-ray examination in 1925.

C. The number *in statu quo ante* was 19.

D. The symptoms had become worse in 4.

The percentage of A and B together was 42; of C and D together 57.

These percentages may be compared with the late results found by Dr. Conybeare in 39 cases of gastric ulcer treated surgically at Guy's.[1]

Medical Cases.		*Surgical Cases.*	
Group A 22%	... 42%	Group A 38.0%	... 58%
Group B 20%		Group B 20.0%	
Group C	... 57%	Group C 17.5%	... 40%
Group D		Group D 22.5%	

The results, analysed in regard to position, are as follows:

Ulcers in the Cardiac Third of the Stomach.—Six cases were obtained; of these, 4 were in Group A and 2 in Group B.

Ulcers in the Middle Third of the Stomach.—Number of cases 27. In Group A there were 2 cases (7 per cent.); in Group B 3 cases (11 per cent.), in Group C 17 cases (63 per cent.); and in Group D 3 cases (11 per cent.).

Ulcers in the Pyloric Third of the Stomach.—Number of cases 10. In Group A there were 3 cases (30 per cent.); in Group B 4 cases (40 per cent.); in Group C 2 cases (20 per cent.); and in Group D 1 case (10 per cent.)

It has been stated that the result of medical treatment varies with the duration of the symptoms, and presumably the chronicity of the ulcer. In this series the length of history of the cases was as follows:

Cardiac Cases.—Those in Group A had a history of 3 years, 10 years, 3 months, and 2 weeks respectively; those in Group B of 2 years.

Mid-Gastric Cases.—Of the two cases in Group A, one had a history of 11 years, the other of 6 months. Of those in Group B there was a history of 9 years, 12 years, and 12 years respectively. Of the Group C cases symptoms had been present for 20 years in one case; for 17, 11, 9, 7, and 6 years respectively in five cases; for 5 years each in four cases; for 2 years in one, 1½ years in one, 1 year in each of five cases; for 2 months in one, and for 1 week in one. Of the three cases in Group D, one had a history of 9 years, one of 5 years, and the third of 1 year.

Ulcer in the Pyloric Third of the Stomach.—Symptoms had been present in the three cases in Group A for 15, 7, and 4 years respectively; in the four cases in Group B for 15, 14, 9, and 3 years respectively; in the three cases in Groups C and D for 15 years in one, and for 1 year each in the other two.

The above does not show any constant relationship between the duration of the condition before treatment and the ultimate result. Thus in the mid-gastric group, seven cases unrelieved by treatment had histories of one year or less. Krohn,[3] discussing the results of medical treatment in 200 cases of gastric ulcer, came to a similar conclusion.

Relation of Results and After-treatment.

The patients were practically all of the artisan class, in whom dieting and the regular taking of medicines is likely to prove irksome if not impossible. It was found that no dieting was practised save during the bouts of pain, when meat, etc., was avoided, and bismuth taken. This absence of prolonged after-treatment may help to explain the failures.

Conclusions.

1. Very optimistic claims are made from time to time for the results of medical treatment of ulcers. It is interesting to note the results given at roughly ten years' interval: Joslin[2] in 1899 gave 40 per cent. well at the end of five years, and in 1914, 39 per cent. Krohn[3] in 1924 gave 48 per cent. in patients over 40 years of age. These authors include gastric and duodenal ulcers in their figures. The 48 per cent. well or very much better of this series would agree with the above. The treatment of gastric ulceration has changed in the last thirty years, but this change is not reflected in my figures.

2. The impression that the chances of successful treatment of an ulcer with a long history are poorer than in one of short duration does not receive support in this series.

3. The cardiac cases, although very small in number, give a good result for medical treatment.

My thanks are due to Dr. Poulton for his help and advice, and to the physicians of Guy's Hospital for giving me access to the reports.

REFERENCES.

1 Conybeare: *Guy's Hospital Reports*, 1923.
2 Joslin: *Journal of American Medicine*, 1899; ibid., 1914.
3 Krohn: *Norsk Magasin for Laegevidenskaben*, 1924.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RUPTURE OF THE RECTUS ABDOMINIS MUSCLE.

TRAUMATIC rupture of the rectus abdominis is a rare condition, though one easily diagnosed. It has been recorded as occurring in tetanus, and there is a specimen in the museum of the Royal College of Surgeons in which the muscle has been completely torn across as a result of a tetanic spasm. Severance of a few fibres of the rectus muscle is probably not uncommon, and after labour a peculiar tumour, really a fibroma, occasionally occurs, which is traumatic in origin.

A woman, aged 35, an acrobat, was admitted to the Leeds General Infirmary on January 23rd, 1927. Ten days before admission, while performing a trick, she had experienced a sudden severe pain in the abdomen which compelled her to give up her performance that night, which was a Saturday. The following week she managed to perform some of her less arduous tricks, but on the Saturday of that week she again hurt herself and had to give up her work and to seek admission to the infirmary. There was marked tenderness over the rectus abdominis muscle just below and to the outer side of the umbilicus and slight swelling. Above this a distinct gap could be felt occupying about half the transverse extent of the muscle. This became visible on the patient raising her head. Operation was recommended and carried out. An incision was made over the injured area and the rectus sheath exposed. This was opened and the muscle was found torn through about half of its extent. The gap, which was three-quarters of an inch wide, was filled with blood clot.

This was cleared out and the divided muscle united with stout catgut applied as mattress sutures. The patient made an uninterrupted recovery. She was advised not to do acrobatics for at least three months.

Leeds. P. J. MOIR, M.B., F.R.C.S.

RUPTURE OF THE RECTUS ABDOMINIS MUSCLE SIMULATING APPENDICITIS.

RUPTURE of the rectus abdominis muscle by indirect violence appears to be a condition of relatively rare occurrence, and is not mentioned in any of the standard text-books as a lesion to be considered in the differential diagnosis of appendicitis.

A woman, aged 48, was admitted to Northampton General Hospital on February 8th, 1927. Six weeks previously, while stretching up to take a jar from a shelf, she felt a sharp pain in the right iliac region. The pain was present for three days, but there were no other symptoms, and she was able to do her housework. One week before admission, while walking about the house, she again felt the pain and went to bed. The pain became a constant ache with occasional sharp twinges, located at first in the suprapubic region and later in the right iliac fossa. During the week she also complained of loss of appetite and was feverish at night, sweating frequently. She had no cough, nausea, or vomiting, but was constipated.

On admission the temperature was 99.8°, and the pulse 96. The abdomen presented slight resistance in the lower half of the right rectus muscle and slight deep tenderness, with its maximum one inch above and internal to McBurney's point. No tumour was palpable. The heart and chest were normal. A diagnosis of subacute appendicitis was made, and the abdomen opened by a right paramedial incision. The rectus sheath was blood-stained, and on opening it the middle third of the muscle was found to be ruptured about 1½ inches below the umbilicus. Between the fragments was a blood clot which appeared to be partially organized. The muscle itself was dark red. On opening the peritoneum the appendix was found to be normal in every way. The ends of the ruptured muscle were approximated and the wound closed. Apart from the extrusion of a catgut suture the patient made an uneventful recovery and was discharged with a firm scar in sixteen days.

Of twenty-five recorded cases of rupture of the rectus abdominis muscle twenty-three occurred during influenza, one in pneumonia, one from coughing, cause not stated, and one from an effort in jumping.[1] The presence of muscular lesions in influenza and of a special predilection for the rectus abdominis, resulting in some cases in rupture, was made clear by Abrahams, Hallows, and French in 1919.[2] They described the muscle as haemorrhagic and pulpy, and thus distinct from the pallid appearance seen in other acute fevers such as typhoid. The lesions occurred chiefly in the very severe cases of influenza.

Where there is a definite infective lesion the occurrence of muscle rupture from slight degrees of violence is easy to explain, but in the case here recorded the rupture presumably took place six weeks before admission and at a time when the patient was in good health. The recurrence of symptoms five weeks later is difficult to explain, as she can give no history of a second strain.

I am indebted to Mr. Holman, F.R.C.S., for permission to publish this case.

Northampton. C. R. MCCASH, M.B., Ch.B.

PULMONARY EMBOLISM FOLLOWING CHILD-BIRTH—RECOVERY.

IT may be of interest to add the following report of a case of pulmonary embolism to those recently published in the JOURNAL.

A primipara, aged 33, was delivered of a boy weighing 8 lb. in May, 1926; labour was somewhat lengthy, but not unduly so considering her age; otherwise it was normal in every way.

I was present at the birth, and her general condition was excellent. I was sent for three days later and found her very cyanosed, with a small pulse of 160, the temperature 100.5°, respirations 45. She told me that she had been quite well until an hour or so previously, when she felt a sudden severe pain in the left side of the chest, with difficulty in breathing. It was an effort for her to talk, and she was coughing up frothy blood-stained sputum.

The only physical sign I could find was a small area of dullness in the left upper lobe; everything else was normal.

Oxygen was given through a closely fitting mask, and on two occasions a quarter of a grain of morphine hypodermically for the pain. She was very ill for fourteen days; she then gradually recovered, and was up within four weeks. She is expecting her second child in June.

Yalding, Kent. MARTIN HALLAM.

[1] Hartman, H.: *Presse Méd.* 1917, 25, 241.
[2] Abrahams, Hallows, and French: *Lancet*, 1919, i, 1.

Reports of Societies.

EXPERIMENTAL ENDOMETRIAL GRAFTS.

AT a meeting of the North of England Obstetrical and Gynaecological Society on April 1st, at the Medical Institution, Liverpool, with the President, Professor FLETCHER SHAW, in the chair, Dr. J. W. A. HUNTER read a paper entitled "Some observations on experimental endometrial grafts."

Dr. Hunter said that though workers appeared to be satisfied when they had demonstrated the possibility of heterotopic endometrial growth, yet no one had as yet reproduced in animals a condition comparable with tarry ovarian cysts in women. In his research he had used some forty rabbits; the transplants were mostly autogenous, but a few were heterogeneous. The general reaction obtained was the growth of a multilocular cyst lined by columnar epithelium which was non-infiltrating; stromal proliferation only occurred in the papillary buds. From rabbits killed on the third and tenth days respectively after grafting two methods of cyst formation were found. The epithelium dipped down into the graft to form a cyst, or it covered the graft and lined the under-surface of the layer of fibrin which sealed in the graft. It was also noticeable in these experiments that while the columnar epithelium was scanty in the depths of the graft, it always covered the outer surface and grew along the lines of tissue junction. The stroma in the early stages was engorged. In order to test the effect of vascularity of the site of grafting, some transplants were placed in the liver and some in an avascular part of the abdominal wall in the same rabbit. The former showed considerable proliferation of endometrium with preservation of the racemose gland arrangement but surrounded by a definite capsule, whilst the latter showed a scanty growth of epithelium of a low activity. Even after 290 days a very active growth was found in the liver, whereas it was not so exuberant in the ovary. In another animal, after 388 days the general reaction was obvious, and after 760 days very small cystadenomata were found in atrophic ovaries. As a test of the influence of ovarian hormone grafts were introduced into the ovaries, and both the ovaries, containing corpora lutea, from another animal were transplanted into the abdominal wall. Fifty-four days later very large cystadenomata were found with adhesions to many adjacent organs; these showed large thin-walled cysts without invasion of surrounding structures. This result could only be obtained when the grafted ovaries from another animal contained corpora lutea. In an experiment in which the grafts were placed in the abdominal cavity of a male rabbit it was found thirty days later that there was no trace of the columnar epithelium, but the gland spaces remained. An attempt to confirm the "serosal" theory by the implantation of pieces of peritoneum and subperitoneal tissue produced a negative result, although there was an active growth of the mesothelial tissues. In one case in which grafts were placed in the ovary and the ovary was then transplanted into the abdominal wall definite endometriosis with invasion was produced. Dr. Hunter concluded from this series of observations that fragments of endometrium when grafted into any organ could grow. He considered that the factors which controlled growth of the stroma and endometrium were not the same, and that there was a selective action of the hormone of the corpus luteum controlling endometrial growth, more especially its epithelial portion. The experiments showed that whereas implanted endometrium could continue to grow for an almost unlimited time, it did not, in normal circumstances, become invasive. In the one instance in which there was an abnormal factor present (transplantation of the ovary which was the site of the graft) the typical picture of endometriosis was obtained. This rather led to the view that for the production of the human picture, one factor, either the endometrium or the invaded tissue, must be abnormal.

Dr. S. B. HERD asked whether the time in the oestral cycle at which the endometrium was taken for grafting made any difference to its capacity for growth.

Professor BLAIR BELL commended Dr. Hunter's research, and said that such investigations would advance knowledge of an interesting subject. He showed a specimen which indicated that it was possible experimentally to secure, not only an endometrial tumour by implantation, but also, during pregnancy at any rate, to produce a "shower" of glandular implants almost entirely over the whole peritoneal surface of the abdominal cavity.

The PRESIDENT emphasized the importance of comparing results obtained by experimental methods of this kind with clinical experience.

Dr. HUNTER, replying, stated that in his experience the time in the oestral cycle at which material was obtained for grafting made no difference to its capacity for growth.

Unusual Congenital Abnormalities.

Professor D. DOUGAL reported a case of unusual malformation of the broad ligament. He said that a married nullipara, aged 45, had complained of a blood-stained discharge of twelve months' duration; a severe haemorrhage had occurred two months before she was seen. On examination the uterus was found enlarged. The cervix was much thickened, very hard, and stretched, and there was a good deal of bleeding on examination. On opening the abdomen it was found that the uterus contained a number of fibroids, including one in the cervical canal. The main interest, however, lay in the malformation of the left appendage. The left ovary lay with its inner pole close to the internal abdominal ring, and running from it into the inguinal canal was a thick muscular cord, about one-eighth of an inch of this being visible between the ovary and the ring. The ovary was normal in appearance. The left Fallopian tube was somewhat small and terminated on the outer side of the ovary more than two inches from the uterus; the fimbriated end was fully developed. The kidney and ureter were completely absent on this side. Running from the ovary towards the uterus was a fold of peritoneum in the outer part of which could be made out a fibro-muscular structure, which tapered to a point and terminated about one inch from the uterus. The peritoneal fold joined the uterus about the junction of the body and cervix. The right ovary and tube were apparently normal, and were attached to the uterus at a much higher level than the peritoneal fold on the opposite side. The uterus itself was much distorted by the presence of fibroids, but Professor Dougal thought it might be assumed to be of the unicornuate type, the left horn being completely absent. The upper part of the left Müllerian duct formed the Fallopian tube, and there the further development of this structure had ceased. The Wolffian structures on this side were evidently absent. The position of the ovary at the internal abdominal ring was interesting, as the fibro-muscular cord attaching it to the ring presumably represented the ovarian and round ligaments. As the Müllerian duct on this side had not grown inwards to fuse with its fellow of the opposite side, the gubernaculum had drawn the ovary straight downwards to the inguinal ring. The malformation was undoubtedly rare, and he had only been able to find a record of one somewhat similar case, which was reported by Bonnaire and Durante in 1912.

Professor Dougal described also a case of unilateral duplication of the ureter with one ectopic opening. The patient, aged 24, unmarried, had complained of deficient control over micturition, which had been present practically since birth. She was able to pass urine in the ordinary way, but in addition was wet both night and day. She always wore a diaper and used three in the twenty-four hours—one during the night and two during the day. The leakage was noticeably worse in cold weather. She was well developed and highly educated, and was acutely conscious of her disability. On inspecting the vulva carefully Professor Dougal thought that he could observe urine welling up from the vagina. He therefore decided that the condition was more than a mere weakness of the sphincteric control of the bladder, and admitted her to a nursing home for further investigation under anaesthesia. During this examination he found that the urine escaped periodically from a small opening in the vestibule just below the urethral opening, and a little to the right of the middle line. It was a simple matter to demonstrate that the urine coming from this opening did not pass through the bladder, and it was therefore evident that the condition was one of ectopic ureteral opening. Mr. Wilson Hey found that there were two ureteral openings normally situated in the bladder, and that both were acting normally. In addition there was a second ureter on the right side, and this one had an ectopic opening on the vestibule. Sodium bromide was injected into the right ureter on the left side, but only a small quantity could be passed in and there appeared to be some partial obstruction in the upper part. This salt was also injected into the ectopic opening of the right ureter, and passed freely up to the kidney pelvis. Professor Dougal said that there were evidently two pelves and two ureters on the right side; one of these ureters had an ectopic opening from the vestibule. The lower part of the ectopic ureter was sacculated, as was well seen in the radiogram. This abnormality was obviously important clinically, but it was also interesting from an embryological point of view, as the ectopic ureteral opening in this case was situated at the point where Gärtner's duct was usually supposed to terminate.

Professor BLAIR BELL called attention to the fact that true uterus unicornis was very rare. Most cases so described had been, in reality, cases of uterus bicornis in which one horn was poorly developed. Two other points of interest were demonstrable in Professor Dougal's specimen. The ovarian ligament on the side on which the uterine horn was not developed ran straight to the inguinal ring, indicating the truth of views emphasized by the speaker many years previously, that the round ligament and the ovarian ligament were one structure, and together represented the gubernaculum. The second point of interest was that, although the Fallopian tube as a whole was not formed, the fimbriated extremity was present—a matter of common observation in many cases of malformation of the parts, and one which bore out Keith's contention of the origin of the fimbriated extremity from the pronephros.

Clinical Demonstrations.

Professor BLAIR BELL described a specimen and sections of carcinoma of the cervix with pregnancy. The patient was a 12-para, aged 36, and was twenty-two weeks pregnant when seen. Panhysterectomy with bilateral salpingo-oöphorectomy and appendicectomy was performed, and recovery was uneventful. Subsequently she was treated by injections of lead colloid. Professor Blair Bell said that cancer of the cervix associated with pregnancy was decidedly rare, occurring on an average once in about every 10,000 cases of pregnancy.

He then showed a case of primary adenocarcinoma of the Fallopian tubes in a primipara, aged 45. She had complained of pain in the back and hypogastrium, and a yellow inoffensive discharge for twelve months; there was frequency of micturition, and the patient became exhausted on the slightest exertion. The uterus was thought to be enlarged, irregular and immobile. A large swelling was felt through the anterior fornix, evidently pressing on the bladder. A hard mass was felt on either side of the uterus. Panhysterectomy with bilateral salpingo-oöphorectomy was performed, but was extremely difficult, owing to the density of the adhesions and the presence of bilateral ovarian cysts, which appeared to burrow deeply in the loose tissues of the pelvis. Subsequently a small vesico-vaginal fistula was found and easily repaired. Professor Blair Bell said that primary carcinoma of the Fallopian tube was rare, less than 150 cases being reported in the literature. It was probable that the condition occurred with greater frequency but that the cases were not recorded. He had had three cases, but the other two had not previously been reported, although a section from one of these was illustrated in the last edition of his *Principles of Gynaecology*.

He also showed three cases of Krukenberg tumour, one associated with pregnancy. The first patient was a nulliparous married woman, aged 35, who complained of a bearing-down pain in the hypogastrium, with frequency of micturition almost amounting to incontinence. On examination a large tumour, mostly in the right iliac fossa but extending in the hypogastrium to the umbilicus, was felt.

The cervix was immobile, and the uterus could not be separated from the tumour. Following operation the patient died from heart failure. The second patient, a 7-para, aged 42, complained of vomiting for eighteen months, and pain in the epigastrium relieved by the vomiting. She also had obstinate constipation, loss of weight, weakness, and haemorrhoids. On examination the tumour was discovered in the epigastrium, and was thought to involve the liver. There was dullness in the flanks and free fluid in the abdomen. At laparotomy a primary carcinoma of the pylorus was discovered adherent to the liver, in which there were secondary nodules. There were nodules on the peritoneum. The right ovary was the size of a large coco-nut; the left ovary was smaller. Subtotal hysterectomy with bilateral salpingo-oöphorectomy was performed. Thereafter she had a course of six injections of lead colloid, but death occurred at the end of eight and a half months. The third patient, a 5-para, aged 32, complained of diarrhoea for two years and a painless lump in the right iliac fossa, which had gradually increased in size for four months. Just before she was seen she had had a severe pain in the right side, accompanied by vomiting and diarrhoea. There had been loss of weight. On examination the uterus was found to be about four months pregnant, and there was a solid tumour to the right of it, which extended into the pouch of Douglas. The uterus itself was mobile. Supravaginal hysterectomy with double salpingo-oöphorectomy was performed. The right ovary was enlarged to the size of a foetal head, and was adherent to the rectum. The left ovary did not appear to be affected. A cicatricial area at the pyloric end of the stomach was detected. Subsequently *x* rays showed malignant disease at the pylorus. The patient commenced a course of lead injections, but was lost sight of later. Professor Blair Bell said that these tumours, originally described by Krukenberg as primary sarcoma carcinomatodes of the ovary, were now invariably regarded as secondary to gastric, or possibly intestinal, carcinoma.

Dr. BURNS mentioned a case of carcinoma of the cervix complicating a sixteen weeks' pregnancy for which he performed Wertheim's pelvic dissection, and later applied radium to an early recurrence in the vaginal vault with a satisfactory result. Miss IVENS said that she did not consider primary carcinoma of the Fallopian tube as a very malignant condition, and quoted two cases of her own in support of this view. Dr. W. W. KING asked how long the patients with Krukenberg's tumour had lived after operation, as from his experience of three cases the average time was only about three months. Professor BLAIR BELL, in reply, said that he considered primary carcinoma of the Fallopian tube on a par as regards malignancy with adenocarcinoma of the body of the uterus; for a long time the disease remained enclosed within the tube. While this was so, extension or metastasis was rare, but once the tube wall was penetrated extension was rapid. As the Krukenberg tumours were always secondary to disease elsewhere, removal of them alone, without further treatment, must be followed in a few months by the death of the patient.

Mrs. DOBBIN CRAWFORD reported a case of double vaginal cyst arising from Gärtner's duct. The patient, a multipara, aged 52, suffered discomfort and pain from a swelling in the vulva caused by one of two vaginal cysts. This was the size of a golf ball and occupied the lower part of the right antero-lateral vaginal wall, ending at the vestibule about half an inch behind the urethra. The second cyst was above the first; it was smaller and oval, and passed up towards the right fornix. The cysts did not appear to communicate with each other. Each was readily shelled out from beneath the vaginal mucous membrane, but in the deeper layers was attached by dense fibrous tissue. The lining membrane was smooth throughout and there was no sign of infection. A section showed that the cyst was lined by epithelium which was cubical in most parts, but here and there a fold in the cyst wall was lined by columnar cells; these cells had possibly been protected by the fold from pressure and so had undergone no flattening. Outside the epithelium a layer of connective tissue was to be seen surrounded by muscle. Several cases on record of distension of Gärtner's duct were mentioned, in particular that reported by Amand Routh in 1894, in which a parovarian cyst was in communication with a vaginal cyst, which latter opened by a very small orifice at the base of the vestibule about half an inch behind and to the right of the urethra, quite distinct from Skene's tubules.

Professor ERNEST GLYNN described a case of idiopathic dilatation of the urinary bladder in a woman aged 48; trabeculae were well developed and a small sacculus was present. There was also a moderate amount of bilateral hydronephrosis. The uterus was normal. He had performed necropsies on two similar cases in men. He wondered how far such a condition might be produced by habit. On the other hand, he pointed out that idiopathic hypertrophy of the bladder with hydronephrosis was described in children. He himself had seen two cases *post mortem*, both males, aged 12 and 16 respectively. Dr. J. E. GEMMELL described two cases he had seen. No cause could be assigned for the first, but the second was certainly due to a "habit"; the patient, finding it very difficult to leave her work, had accustomed herself to going all day without emptying her bladder. Dr. W. W. KING also quoted two cases due to habit—the one in a cinema pianist, and the other in a chronic alcoholic who had prolonged periods of unconsciousness. Professor GLYNN, in reply, quoted a similar case in a policeman who was on point duty for long hours at a time.

FRACTURE OF THE PATELLA.

AT a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on March 25th, Sir WILLIAM I. DE COURCY WHEELER in the chair, Mr. W. PEARSON showed a child, aged 10, on whom he had recently operated for fractured patella.

Mr. Pearson said that the child had climbed up on to a mangle and had fallen to the floor; she had not been able to get up. She was taken to hospital, and the knee-joint was found to be very distended, obviously with blood; owing to this distension it had been very difficult to make a diagnosis. A skiagram, however, showed that the patella had been fractured. Six days after admission Mr. Pearson had operated, and had found a typical transverse fracture of the patella. The operation had now been performed three months, and the child could run about quite well. Mr. Pearson said that this form of fracture of the patella was a very common injury in adult life, but it was believed to be an injury which never occurred in children, and practically never in adolescence. He thought it probable that the reason for the rarity of the injury in children was the fact that the knee extensor was very elastic at that age.

Sir WILLIAM WHEELER said that there was very little in the literature about fractures of the patella in children; but it was stated that they were unknown before the age of 10, were very rare up to the age of 20, and were almost confined to later life.

Mr. A. CHANCE referred to the good mobility of the knee obtained in Mr. Pearson's case. He added that it was essential to get back the full range of flexion, for anything short of full range involved a recurrence of patellar strain with possible repetition of the fracture.

Mr. PEARSON, replying, agreed with Mr. Chance that a fracture of the patella might recur; he proposed to keep his patient under observation until he had obtained full range of flexion. He thought that fracture of one patella predisposed to fracture of the other.

Psoas Abscess due to Tuberculous Kidney.

Mr. SETON PRINGLE showed a specimen of a tuberculous kidney associated with the formation of a psoas abscess.

A woman, aged 32, was admitted to hospital complaining of a large swelling in the right side of the abdomen which had grown slowly and without pain, and of a second swelling in the upper inner aspect of the right thigh. On examination the clinical features of a typical psoas abscess presented, but, in addition, a hard nodular tumour could be felt in the right hypochondrium, immediately underneath the anterior abdominal wall. This tumour gave the impression of being a pathological kidney, displaced forwards by the development of the abscess. No evidence of disease could be detected in the spine, which was perfectly flexible. The urine on examination was quite normal, and the cystoscope revealed a normal left ureter and a normal bladder, except for very slight scarring at the site of the right ureteric opening. The opening itself could not be identified after prolonged

search, and certainly was not functioning. There was no evidence of any inflammatory process in the neighbourhood. An x-ray examination of the right renal region and spine was negative. The psoas abscess was aspirated in the upper part of the thigh and 32 ounces evacuated. The right renal region was explored through an antero-lateral oblique incision, and the kidney, which had been completely infiltrated by tuberculosis, was removed. In doing this the abscess cavity was opened and a communication between it and a caseous cavity in the substance of the kidney was easily established.

Sir WILLIAM WHEELER said that this was a very rare specimen. He had never heard of a psoas abscess which was directly due to a tuberculous kidney, as in this case. Mr. DENIS KENNEDY thought that the ureter became affected first, and the disease developed behind it. Mr. C. J. MACAULEY regarded this case as being analogous to cases in which a large gland was found in the neck, with a caseous abscess at the bottom of it. He suggested that the absence of previous bladder symptoms could be accounted for by the early closure of the ureter.

JAMES MACKENZIE INSTITUTE.

Acidosis.

THE concluding lecture of the spring course at the James Mackenzie Institute for Clinical Research, St. Andrews, was delivered by Dr. G. MATTHEW FYFE, his subject being laboratory observations on acidosis. After remarking on how little was really known regarding the biochemistry of acidosis, largely on account of the complicated changes which occur, the lecturer pointed out that even in the most intense manifestations of the disease the reaction of the blood remained practically constant. The mechanism by which this constancy was maintained was an intricate one depending upon two essential processes—the presence of buffer substances and the excretion of acid bodies—interference with which resulted in the appearance of the syndrome clinically termed acidosis. The actions of the bicarbonates and the phosphates, which together constituted what was termed the alkaline reserve of the blood (a sustained diminution of which gave rise to the symptoms of acidosis), were described, and the significance in the laboratory diagnosis of acidosis, of observations on the amount of bicarbonate and CO_2 in the blood and of CO_2 in alveolar air, was emphasized, as was the information sometimes derived from comparative estimations of the reactions of the blood and of the urine. Little information could be derived from the buffer effect of amphoteric proteins in acidosis. Regarding the cells of the body two similar neutrality regulating processes were described—that of the "chloride shift" and that of the alterations which occur in the strength of haemoglobin as an acid. Their mechanism, however, could not be estimated in exact terms, but nevertheless it was thought that the cells along with proteins constituted a line of defence second to that of the alkaline reserve. There was described an accessory mechanism, controlled by the kidneys, wherein a considerable amount of ammonia derived from the faulty deaminization of proteins was used to neutralize abnormal acids, so as to prevent loss of the fixed alkalis of the blood and tissues. The criteria of acidosis then would be: (1) Excretion of acid urine; (2) decrease in the bicarbonates of the blood, with consequent decrease of its CO_2 combining power; (3) decrease in the CO_2 tension of alveolar air; (4) alteration in the ammonia coefficient of urine; (5) excretion of ketone bodies.

An opportunity was taken at this point to define acidosis and ketosis as different phenomena, the former being a perversion of physiological processes, the latter being a pathological process accompanied by acidosis. Acidosis was defined as an interference with the neutrality regulating processes of the body, with a consequent deficiency in its powers to deal with the acid substances produced in metabolism. The concluding part of the paper was concerned with laboratory methods of diagnosing acidosis, with methods of estimating the acidity of the urine, acid excretion by the kidney, sodium bicarbonate in plasma, CO_2 in alveolar air, ammonia and ketone bodies in urine were described. By the simple expedient, however, of administering sodium bicarbonate by mouth and of testing the reaction of the urine, the physician had at his command probably the most practicable test at present available.

Reviews.

THE THEORY OF PERCEPTION.

SIR J. H. PARSONS'S *Introduction to the Theory of Perception*[1] is one of the series of volumes forming the Cambridge Psychological Library. Psychology is largely studied by introspective and other methods which are not very amenable to strict scientific discipline, and the study of perception, which may be said to form a connecting link between consciousness and simpler nerve processes, brings it into touch with the biological relations of the organisms and affords a mode of approach that is open to direct observation and experiment.

The author introduces the subject by a statement in general terms of the nature, genesis, and mechanism of perception. This is followed in subsequent parts of the work by a more detailed discussion of the various aspects of the problem, more especially in connexion with vision, the author's own special study. The simplest example of the mechanism is to be found in the unicellular organisms; here no differentiation of sensory receptors exists, nor any differentiated paths for incoming and outgoing impulses. There are no co-ordinating centres, but the whole body reacts in the mass. Consciousness, if it exists at all, is a mere vague awareness, associated with a feeling of pleasantness or unpleasantness according to the nature of the stimulus; and the response is limited to a simple withdrawal or approach, depending on the biological requirements of the animal. To this fundamental form of sensibility the name protopathic has been applied, in accordance with Head's nomenclature; it is manifestly of great importance for the preservation of the individual in the lowest types, and its existence can be recognized, according to the author, even in the highest forms of sensibility. Mounting a step higher, definitely localized receptors of stimuli are met with and impulses are transmitted through localized paths, forming the reflex arcs with their central intercommunications. Notwithstanding the increased complexity involved in these changes, it is possible to conceive, at least theoretically, that the sensibility retains, in the main, its protopathic character.

The next stage discloses a marked advance depending on the diversity of the stimuli impinging on the organism. Receptors become differentiated, introducing different modalities of sensation, such as vision and audition, and the impulses received in consciousness cease to be homogeneous. It is at this stage, apparently, that perception arises, the term denoting consciousness, with discrimination added to the mere feeling of pleasantness and unpleasantness. There arises a consciousness that certain groups or patterns of impulses among the aggregate of impulses received have a special biological significance, and these perceptual patterns, stereotyped by habit, become prepotent over concomitant impulses. Sensibility, therefore, in this stage, while still retaining a latent protopathic character, acquires discriminating or, as is said, epicritic features, and the mechanism becomes dual. A further important modification arises from the predominance of one or more of the sensory modalities; in some animals the sense of smell, in others that of sight, and these differences have a psychological bearing depending on the particular mode of life of the animal. The relatively complex mechanism described forms the basis of instinct; in its purest form the consciousness of perceptual patterns is held to act by inducing some definite emotional tone, and this exerts an influence on the motor response which is normal to the given stimulus. A good example of instinctive response is seen in the first flight of birds. The mechanism is transmitted hereditarily, and on the receipt of the appropriate stimulus flight occurs without any preliminary tentative rehearsals or deduction from previous experience. A still higher type of epicritic sensibility has its anatomical basis in the association-tracts of the cortex, which also subserve what the author, introducing a new term, calls the syncritic integration of perceptual patterns, such

[1] *An Introduction to the Theory of Perception.* By Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S., F.R.S. Cambridge Psychological Library. London: Cambridge University Press. 1927. (Roy. 8vo, pp. viii + 254; 71 figures. 18s. net.)

integrated patterns becoming manifest in consciousness and active in conceptual thought. It would appear that in consciousness on this the plane of intelligence, the integrated perceptual patterns act less as inducing mere emotional tone than as independent internal stimuli.

Such, in general terms, is the thesis which the author develops with a wealth of illustration, citation, and exemplification that at times leads to some degree of obscuration of the thesis itself, though its complexity may render this unavoidable. The subject is subsequently treated in detail in three directions: a discussion of the principal sensations of the fundamental perceptions, and especially those of space and movement, and of the evidences derived from the study of comparative anatomy, the main part of the discussion centring round the mechanism of vision. Under this heading are considered the dual mechanism of vision, the appreciation of form and contour; colour vision; the sensatory response and its duration in the epicritic form; visual induction, excitation and conduction; and the comparative anatomy of the eye and development of the visual paths. A point of particular interest is mentioned bearing on the trichromatic theory of colour vision. It has been shown that the response to a momentary flash of light is not a momentary sensation but a wave of sensation which may be graphically represented by a curve; and further, that the sensation-curves of the fundamental colours develop with unequal rapidity, so that their summits occupy different positions and can be separately distinguished. By fatiguing the retina with monochromatic light a modification can be observed in the sensation-curves, corresponding in position to the spectral colour used, and it is found that, whatever the colour employed, modification occurs in the curves of red, green, and violet only—a strong confirmation of the view that these are the fundamental colours and the others merely combinations of them.

The author disclaims any attempt to have written an exhaustive treatise on perception; his design has been to gather together some prolegomena or preliminary remarks on the subject and to formulate a working hypothesis. A study of the book will convince the reader that it must be a formidable superstructure that requires so substantial a foundation.

SIR GEORGE NEWMAN'S ESSAYS.

UNDER the title *Interpreters of Nature*[2] Sir GEORGE NEWMAN has now collected nine essays and addresses previously published privately, or in some instances in journals not readily accessible. They are not perhaps what some might anticipate from a chief medical officer of the Ministry of Health; but those who are familiar with his reports on medical education and allied subjects will not be surprised. These essays are mainly devoted to medical biography and history, as is shown by the titles "A century of medicine at Padua," "Thomas Sydenham," "Hermann Boerhaave," "John Hunter," "Louis Pasteur," "John Keats," and "William Osler, a physician of two continents." Written in a very pleasant and withal scholarly style, with many allusions, poetical and literary, they analyse the character and achievements of his heroes, who so well interpreted what they had observed in their various capacities. The "Century of medicine at Padua," appropriately written in 1922, the octocentenary of that celebrated university, is dedicated to the medical students of St. Bartholomew's Hospital, on the staff of which William Harvey served as physician from 1609 to 1643. It is just the companion that a medical visitor to Padua should take with him to create the atmosphere of its ancient influence and fame. The account of Sydenham, "the reformer of English medicine," first appeared in the year of the tercentenary of his birth (1624-1924), and the oration "On the disciples of Boerhaave in Edinburgh" was delivered last June at the bicentenary of the Medical Faculty in the University of Edinburgh. The sketch of Sir William Osler is excellent in its affectionate insight, and it is a matter for no small regret that he has not given, as he so well could, a companion appreciation of Sir William's "brother" regius, Sir Clifford Allbutt. There is, indeed, a likeness between these essays and those of Sir William Osler, not only in manner, but in one instance at least in their subject matter, for they both, though with a quarter of a century's interval, deal with the life of John Keats, Sir George's tribute being laid on the poet's grave on the centenary of his death.

This charming volume, fit companion for a holiday, closes with two addresses delivered in similar circumstances—annual congresses of the Royal Sanitary Institute—"Modern interpreters: fifty years' progress in public health" and "Future interpreters: everyman in preventive medicine," which remind the reader of medicine's ideal, the prevention rather than the cure of disease.

THE NATURE OF THE INTRA-OCULAR FLUIDS.

THE third of the Monograph Supplements issued by the *British Journal of Ophthalmology*[3] bears the above title and is the work of Dr. W. STEWART DUKE-ELDER. It incorporates work done for the Sir Francis Laking prize of St. George's Hospital Medical School for the two years 1926-27 in the biochemical department of the hospital.

The book is divided into an experimental and a theoretical section, and a very complete bibliography adds materially to its value. The author concludes that "the nature of the formation and circulation of the aqueous humour as at present classically accepted and taught is wrong; the aqueous is neither a secretion nor, in the accepted sense, a transudate from the blood; it is a dialysate from the capillary plasma, the essential dialysing membrane being the capillary walls; under normal conditions, while an interchange due to metabolic activity constantly occurs, and an internal thermal current exists, the aqueous humour does not circulate actively through the eye, but is in equilibrium with the capillary blood; at the same time, constantly occurring changes of pressure, induced by muscular movements, etc., superimpose upon it secondarily a minimal and intermittent circulation."

No abstract can do justice to the value of this most important piece of original work. In our opinion Dr. Duke-Elder makes out an overwhelmingly strong case for his conclusions; if these are accepted—and we do not see how any who read this monograph can come to any other—it will mean that "many of the problems of ophthalmology will require revision," especially the problems of cataract and glaucoma.

With regard to the secretory theory, which of late years has been the most favoured in this country, it is here shown that the only evidence in its favour is purely anatomical. The ciliary body is not always present. "If it be accepted as a gland, then it must be admitted that it shows no activity as a gland, but merely allows the aqueous to diffuse through its cells passively; that is, it must be admitted that it secretes nothing, for the intra-ocular fluids are in thermo-dynamical equilibrium with the capillary blood, and in their passage through the epithelial cells no work of any kind—chemical, hydrostatic, osmotic, or electrostatic—is done."

Many years ago old Robert Burton, Democritus Junior, took the slight liberty of putting the word "addictus" in the classical quotation that adorns the title-page of this monograph into the plural. He went on as follows: "They will approve of naught but what they first invent themselves, no interpretation good but what their infallible spirit dictates; none shall be *in secundis*, no not *in tertiis*, they are onely wise, onely learned in the truth; all damned but they and their followers; *caedem Scripturarum faciunt ad materiam suam*, saith Tertullian: they make a slaughter of scriptures, and turn it as a nose of wax to their own ends."

We owe it to Duke-Elder—who has approached this problem with physico-chemical experiment, "the most legitimate way in that it involves the introduction of few extraneous influences, and is the least equivocal in the interpretation of its results"—that we can in the future be on the right track in investigating many of the

[2] *Interpreters of Nature.* By Sir George Newman, K.C.B., M.D., Hon. D.C.L., LL.D. London: Faber and Gwyer, Ltd. 1927. (5½ × 8½, pp. viii + 296. 12s. 6d.)

[3] *The Nature of the Intra-Ocular Fluids.* By W. Stewart Duke-Elder. *British Journal of Ophthalmology* (Monograph Supplement III). London: George Pulman and Sons, Ltd. 1927. (Roy. 8vo, pp. 140; 5 figures. 7s. 6d.)

biochemical problems of ophthalmology; and for ourselves, as we had the pleasure of reading this monograph in manuscript and in proof before its issue to the world, we can honestly say, in the quaint phraseology of Burton, that we will come, if necessary, "*e faucibus Erebi*, from the chops of hell," in support of it. R. R. J.

CLINICAL STUDY OF MENTAL DISORDERS.

THE presidential address on *The Clinical Study of Mental Disorders*,[4] delivered at the eighty-fifth annual meeting of the Royal Medico-Psychological Association by Lieut.-Colonel J. R. LORD, C.B.E., F.R.C.P., and reported in our issue of July 17th, 1926, has now been reprinted from the *Journal of Mental Science* and published as a separate volume.

In this address the author has directed his attention principally to the probable future of psychiatry, envisaging its possibilities and the lines of progress it should follow if real advancement is to continue. Lamenting the divorce that has taken place between general medicine and psychiatry, for which he holds both blameworthy, Colonel Lord believes that a nearer approach will bring great gain to both. It is in general medicine that he would find the roots of the science and art of psychiatry. In illustration of this he points to the close relationship to general medicine which exists in such disordered mental functions as the pain, anxiety, and mental fatigue of all acute illnesses, the delirium of fevers, the mental confusion of uraemia, acute alcoholism and toxaemia, the gloom and irritability of alimentary disturbances, the spes phthisica, the coma of diabetes, the hebetude of myxoedema, etc.

He recounts also the great number of patients who first seek relief from private practitioners or general hospitals for mental disorders clothed in the garb of physical disease, and deplores that in many cases this is not recognized until too late. It is in the field of general practice that Colonel Lord considers the greatest advance will be made. "Here the roots of the evil will be located and eradicated and its growth to maturity prevented by methods of prophylaxis. Every general practitioner will then be a psychiatrist. . . . To build up this wider psychiatry which has its roots in general practice, there is urgent necessity for more mental clinics in connexion with the medical schools for teaching purposes, and the next essential is to ensure and maintain a greater efficiency of clinical psychiatry in the mental hospitals. The mental hospitals will then take up their rightful position as in the case of other special hospitals—that is, as adjuncts to general hospitals and work in close relationship with them."

Colonel Lord's address is one which all who are concerned with the prophylaxis and treatment of mental disorder should make a point of reading.

THE MEDICAL ANNUAL, 1927.

The Medical Annual[5] for 1927 follows worthily in the wake of its predecessors, and presents a comprehensive review of medical progress during the past year. Though no new discovery of outstanding importance is recorded, various improvements in treatment illustrate the present tendency of physicians to strive to impart order and direction to modern therapeutics.

The subject-matter of the *Annual* retains the form of a dictionary, and such an arrangement does not readily lend itself to analytical review; nevertheless, numerous points of practical utility can readily be observed. Many of the papers, perhaps of necessity, seem to err on the side of brevity. Fuller details of symptomatology and treatment would have been valuable in some instances; but here criticism ends. The *Annual* is full of interest and of practical help.

The names of the thirty-four contributors are a sufficient guarantee of the clinical value of the papers, of which some are summaries, while others contain critical comments. Without attempting to do more than illustrate the nature of this volume by referring to a few articles, it may be mentioned that special attention is paid to acute infections of the central nervous system, the lead treatment of cancer, abdominal surgery, and the physiology and surgery of the pituitary gland. The obstetrician will find a paper on obstetrics and gynaecology in the East particularly interesting, and an article entitled "Milk: its public health aspect" sums up lucidly and effectively a mass of information which will be as useful to general practitioners as to medical officers of health. The various papers on rheumatic manifestations are timely, and one on pulmonary tuberculosis, with a short summary of Calmette's method of vaccination, deserves to be read with care. Many practical therapeutical points are contained in accounts of the treatment of acute oedema of the lungs by atropine, of cardiac dropsy by novasurol, and of acute septicaemia by intravenous injections of mercurochrome. A well illustrated article sums up the present position of phototherapy.

Many of the diagrams and plates in the volume are of special merit. A valuable miscellaneous section includes an account of the progress of pharmacy and dietetics; descriptions of medical and surgical appliances; lists of new books, various medical institutions, and spas; and an official and trade directory. The *Medical Annual* remains a most useful vade-mecum for the specialist as well as the general practitioner.

NOTES ON BOOKS.

THE numerous friends of the late Dr. ROBERT HUNTER STEEN will be glad that he lived to complete his little volume on *The Modern Mental Hospital*.[6] As Mr. G. M. LEESON observes in an introduction, this work has a poignant interest, as it was carried out as a final act of service to the insane, in whose cause his life had been wholly spent. Dr. Steen was a distinguished psychiatrist, but in this book he makes no attempt to deal technically with his specialty. This is a simple and essentially human work in which the author aimed to provide the public with an account of life in a mental hospital. Two chapters are devoted to a "walk round" the mental hospital; then some details are given of the patients and their illnesses; and after an outline of the methods of treatment which are utilized, the book concludes with an account of the personnel, both administrative and nursing. His long experience as a medical superintendent enabled Dr. Steen to testify to the devotion to duty and the high qualities of the nursing staff. One of his objects in so doing was to attract to their ranks new recruits of the same type who may be reluctant to enter the nursing service of mental hospitals from a misunderstanding of the true nature of the ministration carried on within their walls. We hope that this interesting and enlightening book will have a wide circulation, as it cannot fail to do good.

Mrs. SYDNEY STEPHENSON, whose name is such a part of modern literary activity in ophthalmic work, for her husband was the founder of the *Ophthalmoscope*, and until his death the editor of the *British Journal of Ophthalmology*, has herself penned a little *Guide to Ghent*,[7] and dedicated it to the memory of her husband. It is a most attractive and conveniently arranged volume, giving just so much of direction as will enable a visitor to find his way about. How full of romance the ancient city streets, what wealth of interest attached to the treasures hung in city hall and old cathedral! What a piece of work is the famous polyptych—"The Adoration of the Mystic Lamb," mainly the work of Hubert the elder van Eyck of 1420. At one time its beauties were unappreciated, for in 1816 six of the panels were sold to a Berlin museum. During the great war the principal panel was so cleverly hidden that the enemy's search for it was fruitless, and in 1918 the portions the Germans owned were restored to Belgium under the treaty, and parts that had gone to Brussels were regained, so that the whole is complete. The book may be commended to those who will visit Ghent at Whitsuntide for the congress of the Royal Institute of Public Health.

The eighth edition of *Wheeler's Handbook of Medicine*,[8] edited by Dr. W. R. JACK, has appeared after the short interval of two years since the last was issued. There is little change in the text, but the book as a whole has been carefully revised, and retains those features which have rendered it so popular in the past.

[4] *The Clinical Study of Mental Disorders.* By Lieut.-Colonel J. R. Lord, C.B.E., M.B., M.R.C.P.Edin. London: Adlard and Son and West Newman, Ltd. 1926. (Med. 8vo, pp. 82. 6s. net.)

[5] *The Medical Annual.* Forty-fifth year. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1927. (Demy 8vo, pp. civ + 623; 126 figures, 81 plates. 20s. net.)

[6] *The Modern Mental Hospital.* By Robert Hunter Steen, M.D., F.R.C.P. Introduction by G. M. Leeson, M.B.E., M.A. London: Methuen and Co., Ltd. 1927. (Cr. 8vo, pp. vii + 115; frontispiece. 6s. net.)

[7] *Guide to Ghent.* By Mrs. Sydney Stephenson. London: George Pulman and Sons, Ltd. 1927. (4½ × 7¼, pp. 78; illustrated. 1s. 6d. net.)

[8] *Wheeler's Handbook of Medicine.* By William R. Jack, B.Sc., M.D., F.R.F.P.S.G. Eighth edition. Edinburgh: E. and S. Livingstone. 1927. (Cr. 8vo, pp. xv + 630; illustrated. 12s. 6d. net.)

British Medical Journal.

SATURDAY, APRIL 30TH, 1927.

THE SURGERY OF SPASTIC PARALYSIS.

THE abstract of a paper by Dr. Royle which we give elsewhere in this issue (p. 787) will, perhaps, serve to recall to the notice of surgeons a subject which appears to have received insufficient attention in this country. Dr. Royle has during the last few years given special attention to the surgical treatment of congenital spastic paralysis, and our readers will see from his paper that his results are striking. We need mention only one case in proof of this: a patient, who had for years been able to walk only with the aid of crutches, was enabled to play tennis within a year of operation. This was an exceptionally marked case, but in all the cases operated on, twenty-six in number, there was distinct improvement. The treatment, therefore, seems to merit consideration.

The operation advocated by Dr. Royle, which he has called sympathetic ramisection, is section of the sympathetic nerve supply to the affected limbs. The subject is of great interest both from the physiological and the surgical standpoint, and the idea underlying it is a development of recent years; an account of it was given in a series of lectures by Professor Elliot Smith based on Professor John Irvine Hunter's work, which was published in our first volume for the year 1925.

It appears from Dr. Royle's paper that he had come to regard the spasticity in congenital spastic paralysis as being due to a hampering of voluntary movement through overaction of the antagonizing muscles. He then, according to Professor Elliot Smith's account, called the late Professor John Irvine Hunter into collaboration, and a series of experiments on goats was carried out in order to obtain some precise idea of the conditions underlying spasticity, and to ascertain the effect of section of the sympathetic nerves supplying the limb muscles. Section of the sympathetic nerves suggested itself on several grounds. In the first place, there was Kulchitsky's observation that the medullated and non-medullated nerves supplying a muscle never terminated in the same muscle fibre, showing that so far as nerve supply was concerned there existed two distinct groups of muscle fibres in the voluntary muscles. In the next place, Boeke demonstrated that the non-medullated fibres belonged to the sympathetic system. Thus there were shown to exist a somatic and a sympathetic group of muscle fibres in the voluntary muscles. Further, Sherrington had shown that muscles possess a dual function, contractile and tonic or postural, the former leading to alteration in the position of a limb, the latter maintaining the limb in the new position; he also recognized that postural tone was of two kinds, active and passive, the former occurring in association with voluntary contraction, the latter being demonstrable altogether apart from voluntary contraction. Thus in the decerebrate animal, in which the influence of the higher centres is removed by transection of the mid-brain, a condition of rigidity in extension is produced; in this condition periods of flaccidity occur, during which muscular contraction is absent. If, during this flaccid phase, the animal's limbs are moved, they maintain the position assumed, showing that the passive postural tone has been retained.

Such considerations as these led Hunter and Royle to conjecture that the sympathetic element in muscular innervation might be responsible, through overaction, for the spasticity or excess of tone exhibited in cases of congenital spastic paralysis and other forms of spasticity. Both their experiments on goats and the operations on human beings went far to confirm this view, and it was further corroborated by a series of beautiful experiments on the wing of the bird, in which Hunter analysed the parts played by the sympathetic and the somatic systems. The bird's wing was a particularly suitable subject for experiment, because alterations in tone were immediately visible in the drooping of the wing under the action of gravity, and the positions of the two wings could be compared. Hunter found that on dividing the cervical sympathetic the wing drooped somewhat, the tone of the affected wing being reduced, so that the normal posture could not be perfectly maintained. But considerable tone remained, tending to impose a partially folded posture of the wing. This residual tone Hunter attributed to the presence of an active postural tone induced through the somatic nerves, which in the absence of sympathetic innervation were unable to maintain the wing in the maximum position of flexion against the action of gravity. During light anaesthesia the effect was still more marked, this influence being partly removed. After voluntary activity, by flight, of the partially denervated muscle, the exhaustion of the somatic mechanism manifested itself in a striking degree, from which Hunter concluded that the sympathetic system plays a part during movement as well as at rest, the intermediate postures which the muscle assumes during movement being apparently supported by the sympathetic. By division of the posterior nerve roots, which transmit afferent impulses to the somatic element in the innervation, Hunter was able to demonstrate the retention of purely passive tone; in this state the wing exhibited no tendency to take up any particular posture, but when placed in any position maintained it indefinitely.

In discussing the question of operation, Hunter remarked that the posture of the patient is not the all-important criterion of rigidity. Even the flexed position may be due to a combination of both contractile and passive tone, the two together causing the rigidity. Conversely, the extensor position may be wholly due to contractile or active tone, in which case sympathetic section would be of no avail. The only patients who could be expected to benefit from the operation are those in whom voluntary control of their muscles is intact, but movements are hampered by excessive passive tone. There is a point connected with the treatment which is insisted on by Dr. Royle, and which, if disregarded, is likely to bring the operation into disrepute. The operation does not cure the patient, it merely removes the spasticity and leaves the way open for cure. The latter consists in the education of the patient in the proper use of his muscles and the employment of surgical measures, if necessary, to correct deformities and obstructions to voluntary movement due to contracture.

The work of Hunter and Royle covers but a single section of the wide field of sympathetic surgery. This branch of surgery may be considered to be in its infancy at present, and so far as this country is concerned its introduction has not hitherto been received with much enthusiasm. There can be little doubt

that much is still to be learnt, both on the anatomical and the physiological side, before surgeons will feel quite at home in dealing with the sympathetic; but that knowledge is rapidly advancing in both of these directions is abundantly shown in H. A. Harris's article on the sympathetic system in relation to vascular disease, which appears in another part of this issue. Given a sound knowledge of the anatomy and physiology, the possibilities of sympathetic surgery will become less obscure.

THE LEAGUE OF NATIONS AND TRAFFIC IN DANGEROUS DRUGS.

REFERENCE was made in the JOURNAL of March 12th last (p. 481) to a publication by the League of Nations reporting the appalling amount of illicit traffic in opium, morphine, heroin, cocaine, etc., which recent investigations had exposed. The publication of this document was cancelled and the copies sent to the publishers were recalled, but sufficient indication of its contents is contained in a report which the Advisory Committee on the traffic in opium and other dangerous drugs presented to the March session of the League's Council. The committee informed the Council that the progress made with the ratification of the Geneva Convention of 1925 "is most disappointing." That treaty cannot come into operation until it has been ratified by ten Powers, seven of which must have seats on the League's Council, and two of them holders of permanent seats. It was, however, reported that "only one State permanently represented on the Council and one State non-permanently represented have ratified the Convention"; promises of greater expedition were, however, made. Meanwhile the Hague International Opium Convention of 1912 is the only international instrument in operation to arrest or regulate this insidious and degrading contraband trade.

The committee frankly deplores the fact that its efforts and those of the League "had not been so successful as had originally been hoped in combating the illicit traffic." As the British delegate pointed out, "despite all the efforts of the committee, despite the increasing efforts made by many Governments, the position was still eminently unsatisfactory." The sources from which the supplies for the illicit traffic in these drugs are drawn are said to be unknown, although the factories in which they are manufactured are presumably under the control of the Governments concerned, and huge quantities of these dangerous drugs are being smuggled into China, India, and other countries through the post and otherwise. "The situation," as the British delegate observed, "seems a little short of absurd."

Some of the evidence of "the appalling extent and the very widespread ramification of the illicit traffic" in opium and other dangerous drugs, extracted by the committee from "the formidable document of sixty-one printed pages" whose publication is suspended, was cited in the article already referred to in the JOURNAL of March 12th. Tons of opium, thousands of ounces of morphine and heroin, and hundreds of ounces of cocaine have, in the course of a few months only, been seized in transit. International syndicates reap large profits by this nefarious commerce. The most ingenious devices are used to deceive and circumvent the customs authorities. Consignments, either labelled with the names of the manufacturers or unlabelled, dispatched from various European countries have been confiscated by the Chinese maritime customs.

In view of the state of affairs thus disclosed it was not surprising that the Italian representative, Signor Cavazzoni, who came as a new member of the committee, should have moved a resolution to the effect that, seeing that the manufacture of these drugs is vastly in excess of the world's needs for medical and scientific purposes, and that "in consequence the contraband traffic continues to increase," full application should be given to Article IX of the Hague Convention of 1912, with a view to ration the production of these dangerous drugs.[1] Signor Cavazzoni's resolution was nevertheless rejected by 7 votes to 2, only Siam voting with Italy for it. The representatives of Great Britain and India voted in the majority. The reasons vouchsafed for the rejection of the resolution were that it would reopen the question of the limitation of production of the drugs, which the Second Geneva Conference, after an acrimonious discussion which had led to the withdrawal of the United States and China, decided against; would arouse controversy over the functions of the Central Control Board; and would endanger "the compromise so painfully reached" in 1925. Nevertheless, Article IX of the Hague Convention has been endorsed by Article V of the Geneva Convention, and it is difficult to see why the Italian delegate's plea for direct limitation of the production of the drugs in question, under the authority of the League itself, should have been so emphatically rejected.

Readers of the JOURNAL will remember that we have from the first regarded it as almost impossible to grapple successfully with the control of the traffic in drugs of addiction except by limitation of their production—at their source—to the amounts required for medical and legitimate purposes. Surplus production, as experience has now conclusively demonstrated, is bound to result in diversion into illicit channels, in the misuse of drugs, medicinally beneficent and indispensable, for vicious and criminal purposes, and in the maintenance of a degrading and disreputable traffic for the benefit of unscrupulous profiteers.

POST-GRADUATE TEACHING IN BACTERIOLOGY.

THE appointment committees of universities, municipal bodies, or colonial authorities are, we are told, apt to find that the demand for fully trained bacteriologists exceeds the supply, particularly in the field of medical bacteriology; evidence of the truth of this is afforded by the advertisements which have appeared in our own columns within the last few years. This relative lack of well qualified candidates for appointments, which are in many instances not ill paid, as salaries for scientific posts go, is due, in part at least, to the absence of adequate training facilities. It is clear that only a bare minimum of bacteriology can be included in the already overcrowded medical curriculum; and the course of study for the Diploma in Public Health or in Tropical Medicine cannot cover more than a very small part of the ground, and that in an elementary fashion. Apart from the course for the Diploma in Bacteriology in the University of Manchester there is, at the present time, no systematic instruction in this subject available for post-graduate students in this country. The student who wishes to obtain an adequate training in bacteriology, after medical qualification, must do so on the apprenticeship system, by taking some junior post in

[1] This article runs as follows: "The Contracting Powers will enact pharmacy laws or regulations so as to limit the manufacture, sale, and use of morphine, cocaine, and their respective salts to medical and legitimate uses only, unless laws are already in existence. They will co-operate amongst themselves in order to prevent the use of these drugs for any other purpose."

a hospital or university laboratory. That this is an excellent way of attaining a practical knowledge of the subject is very true. It is, indeed, an essential stage through which the would-be bacteriologist must pass; but as the only available avenue of gaining knowledge it has serious disadvantages. The progress of this branch of science is so rapid, and the field covered so wide, that it is becoming more and more difficult for the student to gain an adequate foundation on which to build, without passing through a systematic course of study, organized to meet his particular needs. The recent foundation of the London School of Hygiene and Tropical Medicine has afforded an obvious opportunity to provide for this need in London; and, in view of the urgent demand for trained men, both at home and overseas, it has been decided by the board of management that the work of the Division of Bacteriology and Immunology shall begin in temporary premises in Gordon Square in October next, when Professor W. W. C. Topley, who, as will be remembered, was recently appointed to the chair of bacteriology and immunology in the new school, comes from Manchester to take up his duties. It is not intended, pending the completion of the school buildings, to provide instruction in those subjects for candidates preparing for the Diploma in Public Health; the lack of adequate accommodation would, indeed, render this impossible. The work of the Division will, during this interim period, be confined to the provision of a systematic whole-time course in bacteriology, occupying an academic year, for those post-graduate students who desire to take up bacteriological work as a career. There is, we understand, a possibility that the University of London will establish an academic Diploma in Bacteriology. Should this be so, the course of instruction will no doubt be planned to meet the University's requirements. Inquiries with regard to the course should be addressed to the Director of the London School of Hygiene and Tropical Medicine, at 37, Torrington Square, London, W.C.1.

CANCER IN SPAIN.

THE need for public enlightenment on the subject of cancer appears to be even more urgent in Spain than in this country, if one may judge by the volume recently published by Dr. Mariano Iñiguez y Ortiz, entitled *El Cáncer en España*.[1] The author is a believer in propaganda, and the book was written with the idea of informing the public on points that bear on the early recognition of the disease and other matters that are of public rather than of professional and technical concern. He anticipates that his book will be read by few, on account, not merely of the general indifference on the subject, but because vast numbers of Spaniards are unable to read at all, and as many more have no wish to; it should, however, prove a useful guide to those who work at propaganda by means of lectures, a method which the author considers inferior to written propaganda. The subject is dealt with on broad lines; it is introduced in an interesting way by tracing the changes that have occurred in the popular and professional views on cancer from the earliest times to the present day, and then reviews the statistics of the subject, the geographical distribution of the disease in the peninsula, the question of heredity, race, and civilization, and the means of combating the disease; finally, a chapter is devoted to the important assistance that can be given only by the public and the patients themselves. In Spain, as in other countries, there has been a progressive increase in the number of recorded cases of cancer in recent years, but the author attributes this to the earlier recognition of the disease, to more accurate diagnosis, and to the increased duration of life. The distribution of cancer in Spain is illustrated in several interesting maps. There is an area of high incidence in the central part of the peninsula, extending from the Pyrenees down to Madrid, contrasting strongly with the entire Mediterranean littoral, where, with the exception of Barcelona, the mortality is only about one-half of that in the central zone. With regard to the progress of knowledge in Spain, not only in relation to cancer, but to medicine generally, the author frequently refers to the indifference of the Spanish people. He quotes a saying of Ramón y Cajal that the great scientific discoveries have depended to a large extent on the element of chance, and that fortune has necessarily favoured those who, by scientific training, have learnt to appreciate the significance of phenomena. He draws the moral that it is only by establishing laboratories and similar institutions that Spaniards can hope to educate themselves and keep abreast of other nations in scientific discovery. Unfortunately the imagination of the Spaniard has, he says, become so impressed with the colossal figure of Don Quixote that idealism and pure science have become distasteful, and the stream of voluntary subscriptions for such institutions is wont to stagnate. Not the least interesting part of Dr. Iñiguez's book is the insight it affords into the national temperament. In speaking of the serious difficulties that are encountered in obtaining satisfactory death certificates and certificates of disease, he states that in many districts the diagnosis of cancer is regarded as equivalent to a sentence of death, and where this is so the natural benevolence of the Spanish doctor revolts against too harsh a decision; the patient may be a friend or relative, and sentiment and affection combine to temper the severity of the diagnosis. Again, it would frequently be considered a mere act of humanity to write down aneurysm of the heart in a case where the patient (unhappy girl!) had died of suppurative metritis and peritonitis. Laxity and indifference, however, appear to affect official quarters as well as the general public. Statistics of morbidity, the author states, cannot be said to exist in Spain, and as an instance of the regrettable inefficiency of the sanitary department, the responsible authority in this important matter, he mentions that as regards many diseases the mortality has been represented as being in excess of the morbidity.

[1] *El Cáncer en España.* Estudio demográfico y de vulgarización por el Dr. Mariano Iñiguez y Ortiz. Soria: Imp. de Reglero. 1926. (6 × 8½, pp. 207 + xiii, 2 figures. 7.50 pesetas.)

GIAN BATTISTA PORTA.

THE series of portraits of Italian doctors and naturalists from the fifteenth to the eighteenth century published by the Italian historical institute of the healing art, to which we drew attention some time ago (December 25th, 1926, p. 1235), contains a woodcut of Giovanni Battista della Porta, otherwise known as Gian Battista Porta, taken from the first edition of his work *Di humana physiognomia*, with a short account of his life and work by Professor Capparoni. Porta was born at Naples in the middle of the sixteenth century, the exact year being uncertain, and died about 1615. He is best known for his work in optics, of which he was one of the pioneers, and the invention of the camera obscura is attributed to him. He had, however, many other claims to scientific distinction. With the aid of his brother he formed a collection of curiosities and specimens of natural history, which was one of the earliest examples of the modern public museum. Besides being a member of the Accademia dei Lincei, he founded the Accademia Secretorum Naturae, admission to which was confined to those who had made some discovery in natural science. He thereby incurred the suspicion of the ecclesiastical authorities, and was commanded by the Pope to close the academy. In the work entitled *Magia naturalis* he described the properties of the magnet, and appeared as one of the first students of toxicology by showing that the striking symptoms which used to be attributed to incantations were really due to the effects of poisons, such as

belladonna, stramonium, or nux vomica. Porta, however, did not escape from the influence of contemporary mysticism, as he fervently upheld the doctrine of signatures emanating from Paracelsus, according to whom a remedy indicated therapeutical properties by its external appearance. Not the least interesting of his works was that entitled *Di humana physiognomia*, by which he was the precursor of Lavater, Gall, and Spurzheim. He also wrote on plants and minerals, which he maintained were governed by the same laws as the animal kingdom.

METHODS AND PROBLEMS OF MEDICAL EDUCATION.

THE sixth series of *Methods and Problems of Medical Education*,[1] issued recently by the Division of Medical Education of the Rockefeller Foundation, New York, contains no fewer than twenty-eight articles, profusely illustrated by 218 plans and photographs, the account of the dermatological clinic of the Royal Hungarian University Pázmány Péter, Budapest, by Professor Ludwig A. Nékám, alone having thirty-six. As in previous numbers of this series, the accounts of the medical schools or their departments have been provided by those on the spot, and by the plans, budgets, and other details should prove a source of most welcome information to those about to organize new departments or laboratories. Most of the subjects dealt with in this instalment are of a scientific or laboratory nature rather than of a strictly clinical character. The first six articles are on the libraries of the medical schools of Peking, São Paulo (Brazil), Harvard, the Washington University (St. Louis), Kingston (Ontario), and McGill University. There is a photograph of the room set aside for the future Osler Library in the McGill Library, founded in 1823, which now contains 60,000 volumes; voluntary classes in bibliographical methods are held, during the course of which directions are given about collecting material for a paper and compiling a bibliography. The library of Washington University now possesses the manuscripts of the pioneer American physiologist, William Beaumont, and here again the librarian gives instruction to medical students. The anatomical departments of Trinity College, Dublin, Belfast, and Milan are described; Professor A. E. Boycott supplies an account of the pathological museum of University College Hospital, Professor Johannes Fibiger is responsible for full details about the institute of pathological anatomy in the University of Copenhagen, and his colleague Professor Oluf Thomsen for those of the institute of general pathology. The biochemical department of Tulane University, New Orleans, which has just started its independent existence, gives 200 hours' instruction in general biological chemistry to first-year medical students, whereas the handsome institute of physiology at Louvain, over which Professor A. K. Noyons presides, has the departments of physiological chemistry and of pharmacology attached to it. The institute of phototherapy at Florence, which was inaugurated in 1905, contains apparatus for high frequency as well as for *x*-ray diagnosis and deep therapy. The projected plans for the institute of physico-therapeutics so badly wanted at Jena are given, but the institute has never been built as the intending donor lost his fortune. Dr. Gibbon FitzGibbon writes on the Rotunda Hospital, Dublin, relating its eventful history and the present daily routine. Public health activities are represented by descriptions of the public health clinic at Dalhousie University, Halifax, and of the institute of hygiene at the University of Cluj, Rumania. The last two articles in the volume are of rather peculiar interest—namely, on the teaching of percussion, by Dr. F. X. Erben of the University of Vienna, and on visual instruction and the projection method of illustrating lectures and demonstrations, by Dr. Carl Jacobj, director of the pharmacological institute at Tübingen.

[1] *Methods and Problems of Medical Education (Sixth Series).* New York: Division of Medical Education, The Rockefeller Foundation. 1927. (Imp. 8vo, pp. 275; 218 illustrations; sent free by the Foundation on application.)

REST PAUSE INVESTIGATIONS SUMMARIZED.

WITH magnificent disdain for the economy which is said to be so urgent a necessity for this country, the Industrial Fatigue Research Board continues to pour forth literature. On March 26th (p. 582) we reviewed a report by Dr. H. M. Vernon and Mr. T. Bedford on rest pauses in heavy work. The Board has now issued a summary by Mr. S. Wyatt of the observations made by its various investigators on "Rest pauses in industry." It is to be hoped that the publications of the Board are read by the persons for whom they are intended. Mr. Wyatt concludes that suitable rest pauses lead generally to improvement in quality and quantity of output. Rest is particularly beneficial in repetitive work of a monotonous character: production is increased in processes which depend on the activities of the worker. It seems, however, that the published work on rest pauses raises more problems than it solves. The results are variable; but this is attributed in the report to unscientific methods of procedure. Careful investigation of the conditions of work should, it is said, be made before introducing rest pauses, since a rest may not be necessary in all cases. Sometimes short and more frequent rests are better than fewer but longer. Individuals have been found to react differently to rest; but Mr. Wyatt wisely recognizes that in practice it would not be possible to give each individual the dose of rest most suited to his or her temperament. Moreover, the woman operative is found to rest better in herds. "Her inclination to work is stimulated by the atmosphere of industry in the room." Mr. Wyatt suggests that the possibility of combining rests with team-work has not been sufficiently explored, so that, for example, with three workers to a machine each would rest for twenty minutes during each hour. In conclusion, the apology is offered for the report that it serves to indicate the number and variety of questions awaiting solution in this aspect of industrial work.

WHAT IS A SAVANT?

A FEW years ago Professor Charles Richet contributed a volume to a series of little books now being published in Paris describing typical characters of to-day—such as the politician, the priest, the diplomat, the lawyer, the peasant, and the workman. Professor Richet's volume dealt with the savant, and Sir Oliver Lodge has now translated it into English with the title *The Natural History of a Savant*.[1] Professor Richet begins by making the just observation that neither in English nor in German is there any word expressing the full meaning of the French term *savant*; certainly the German *Gelehrte* does not. The word "scientist," recently established in English on the recommendation of a number of experienced correspondents of *Nature*, comes nearer. Professor Richet, however, says that the true savant cannot combine any profession, save that of teaching, with his pursuit of knowledge. He is an explorer, confronted with innumerable mysteries which seem to bar the path of human intelligence, and goes on with his work without any thought of the practical outcome. He must possess originality, the critical faculty, technique, erudition, and the power to teach. It is natural, no doubt, that the physiologist and the physicist, for example, should take pride in the feeling that they belong to a race apart; that in the pursuit of pure science they are unconcerned with the practical importance of any discoveries they may make. But it is not possible to draw the

[1] *The Natural History of a Savant.* By Professor Charles Richet. Translated from the French by Sir Oliver Lodge. London and Toronto. J. M. Dent and Sons, Ltd. 1927. (Cr. 8vo, pp. xi + 155. 5s. net.)

distinction too absolutely, or to suggest, for instance, that Pasteur as a crystallographer was a savant, while his discoveries with commercial and medical applications made him something different. Was not the first biography of Pasteur entitled *Histoire d'un Savant par un Ignorant*? Professor Richet, though regarding physiologists as savants, seems to admit anatomists to the sacred circle a little grudgingly, apparently because he still looks on anatomy as an ungrateful science in which few discoveries are to be made. Indeed, Professor Richet himself ranks Ph. Sappey, professor of anatomy, among the finer types of savant. Professor Richet says that engineers and surgeons are not savants, because they have some other object than the discovery of truth. Yet a surgeon who designs successfully a new and daring operation has originality, technique, erudition—in his own subject—presumably the critical faculty, and is certainly engaged in the pursuit of truth. In only one point does such a surgeon fail to reach Professor Richet's standard of a savant—he need not be poor! But we are by no means certain that the emphasis laid on the poverty of the savant is justified. The pursuit of the savant may be comparatively unremunerative, but, like most professions, it would appear to produce a living wage. Perhaps Professor Richet is making a mistake in trying to establish the vocation of the savant as an independent pursuit. It seems more likely that there is something of the savant in all great men who use their brains in the search for truth, and that the mere decision to devote one's life to mathematics, physics, or physiology does not necessarily make a man a savant. Here we are met with the difficulty that we are dealing with a word for which there is no English equivalent. Perhaps the logical Frenchman has elevated into a type a condition of mind which is seldom seen in a pure form. At all events, Professor Richet's gallery of savants is curious in its comprehensiveness, for it includes Galileo, William Harvey, Francis Bacon, Ambroise Paré, William James, Sir William Crookes, Sir Oliver Lodge, Cesare Lombroso, and Frederick Myers.

HOOKWORM DISEASE IN CHINA.

AMONG the major scourges of mankind in the tropics and subtropics, none has achieved scientific interest in recent years to such an extent as hookworm. For this reason, and because of its omnipresence, it has received the attention of the International Health Board of the Rockefeller Foundation, and expeditions have been sent to investigate it in many different parts of the world. The most recent of these is one to China, under the guidance of Dr. W. W. Cort, assisted by Drs. Grant, Stoll, and other collaborators, a detailed report of whose studies has just been published.[1] It appears from this that many of the existing beliefs about the epidemiology of this disease in China are ill founded. It is not distributed generally—indeed, the whole of North and large tracts of Central and South China are so lightly affected that hookworm has no public health significance at all. In the few spots where hookworm disease (as distinct from hookworm infection) did occur, it was one of the major medical problems, and was found to be closely associated with the use of human excrement as fertilizer; but although night-soil is largely used throughout China for this purpose—they estimate that about 24 million tons are used annually—it was only in connexion with its use in mulberry cultivation that it became a serious source of disease. The second picking of the leaves, about the beginning of June, for the feeding of the heavy broods of silkworms, entails a big strain on the vitality of the tree, and about two to four weeks before this is done night-soil, collected for some time before, is heaped around the base of the tree and dug in—ideal conditions for the development of ankylostome larvae from the still viable eggs in the faeces (larvae which have hatched out before distribution are killed by the decomposition in the manure). When the peak of the infectiveness is reached, in two to three weeks, the pickers in their soft sandals come and stand in the mud close to the tree trunk to cut the leaves—ideal conditions for infection with the larvae. It is the combination of these two circumstances that leads to the enormous infection found in the Yangtze delta, in Kwangtun, and elsewhere. Hookworm disease in China, therefore, is not the general sanitary problem it is in other parts of the world; but it is a definitely economic one. If the farmer could afford or could be induced to discard the use of human manure it would be easily eradicated. As this was impossible (he is too poor for the first and too conservative for the second), studies were made on methods of reducing the amount of the infections in the night-soil. Storage for a month under summer conditions, or the addition of a small proportion of slaked or unslaked lime for a week to a fortnight, rendered the number of surviving larvae negligible. Thick sandals and other protections are urged, but Dr. Cort is doubtful if a largely illiterate and very conservative people, many of whom live in places inaccessible to ordinary transport, can be easily influenced by outsiders. He holds, therefore, that the first essential is an adequate modernly trained Chinese medical personnel. Once this has been achieved the people can be reached, and with education prophylaxis is easy.

[1] *The American Journal of Hygiene*, Monographic Series No. 7, 1926.

DAIRYING RESEARCH.

THE report for 1926 of the National Institute for Research in Dairying, established in connexion with the University of Reading, continues to show a depressing shortage of funds. Applications have been made to the Ministry of Agriculture for £23,000 for capital expenditure and for an increased annual grant, and to the Empire Marketing Board for assistance in carrying out researches on dairy products on behalf of the Dominions. The Institute was informed by the Ministry of Health that in the interests of national economy an annual grant of £800 could not be continued after last year; it had proposed to use the grant in developing a small branch laboratory at the School of Tropical Medicine in London for researches on the carriage of milk. The Institute desires to improve its farm buildings, to add a physiologist to its staff, to increase the number of its workers and the laboratory accommodation. In the meantime, pending the arrival of easier financial conditions, it is carrying out researches on the pasteurization of tuberculous milk, on black spot in Cheddar cheese, on oiliness in milk, and on black spots in butter; it has designed a method for concentrating bacilli in tuberculous milk whereby the delay involved in the animal inoculation test is avoided; it has invented a "preheater" for the whey-drying machine; and it is investigating milking machines.

THE KING has nominated Dr. Henry Hallett Dale, F.R.S., to be for five years a member of the General Council of Medical Education and Registration in the United Kingdom, in succession to Sir Nestor I. C. Tirard.

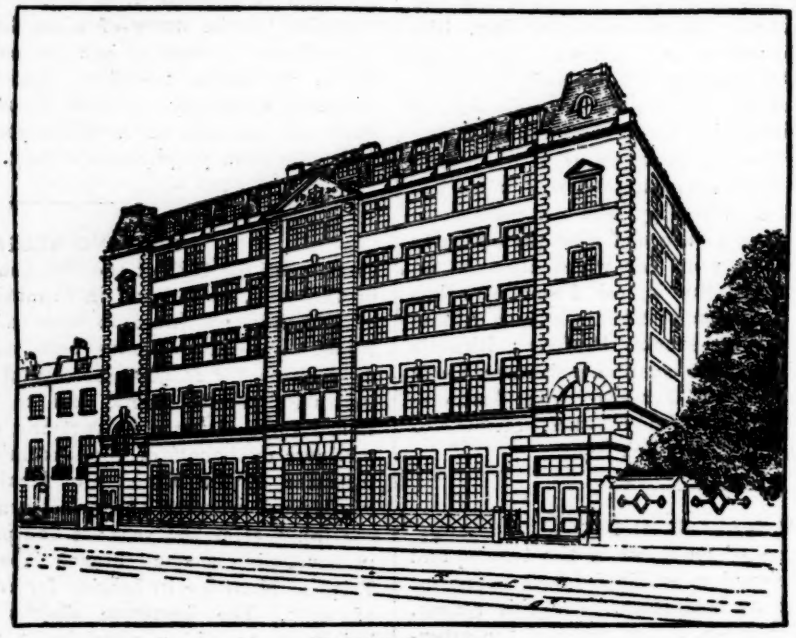
DR. EDWIN GOODALL, medical superintendent of the Cardiff Mental Hospital, will give the eighth Maudsley Lecture of the Royal Medico-Psychological Association on Thursday, May 19th, at 3.30 p.m. The lecture will be delivered in the Great Hall of the British Medical Association, Tavistock Square, and its subject will be "Some of the work done to elucidate the pathology of disease falling to be considered under the rubric 'insanity.'"

RESIDENTIAL CLUB FOR ST. THOMAS'S STUDENTS.

OPENING BY THE ARCHBISHOP OF CANTERBURY.

ST. THOMAS'S HOUSE, in Lambeth Palace Road, a residential club for students of St. Thomas's Hospital Medical School, was opened on April 26th. The house is a six-floored building, situated almost opposite the entrance to the medical school, and is designed to accommodate fifty students and ten hospital officers as residents, and to provide club facilities for all the students of the school.

The authorities of St. Thomas's have for some years past desired to provide residential accommodation for at all events a certain number of students. They have recognized that a large body of students living together in proper surroundings was likely to have a good effect on the well-being of the school. In addition to this, the post-war difficulty of obtaining suitable lodgings within easy reach of the hospital made the need more pressing. Lodgings like those let by Mrs. Raddle—"near Guy's, and handy for me, you know"—have possibly disappeared along with Mr. Bob Sawyer as a type of medical student; but the best of modern boarding establishments within the ordinary student's means is bound to suffer in comparison with what can be offered by a special hostel where the students enjoy a communal life.



ST. THOMAS'S HOUSE.

The students' club at St. Thomas's was formerly housed in a wing of the medical school, but when additional laboratory accommodation was required for the physiology department it was surrendered for that purpose, and the students took refuge in one of the old army huts which had been put up during the war. Meanwhile it was decided that, on a site on the opposite side of the road which had been acquired by the hospital some time before, premises specially adapted for a residential club should be built. The difficulty of financing the scheme led to a good deal of delay, but eventually the hospital authorities found themselves under the necessity of providing additional accommodation for their house officers, and therefore it was decided to combine this with the scheme for the students and to obtain authority to borrow the necessary money for the building operations. One of the hospital governors who was interested consented to lend half the sum required at a low rate of interest, and the remainder of the money having been obtained the work proceeded.

The building, which is now ready for occupation, has a very dignified appearance both within and without, and greatly improves the rather dingy aspect of the east side of Lambeth Palace Road. On the ground floor is an oak-panelled dining room, with office for the steward and the servery, and on the first floor the club room. Each of these rooms is nearly 80 ft. long by 35 ft. broad. In the club room a very handsome overmantel has been erected as a war memorial to St. Thomas's students, and was unveiled on the occasion of the opening of the house. A billiard room and a reading and writing room are provided, and by an arrangement of folding doors a musicians' gallery can be projected into the dining room and a stage into the club room. The four upper floors consist (apart from the quarters of the resident warden) of bedrooms for the students, certain house officers of the hospital, and the resident employees. The bedrooms are so arranged as to form comfortable sitting rooms during the daytime, and the chairs, tables, and bookcases have been designed with that end in view. Washing and bathroom accommodation is arranged in a central apartment on each floor. The building as a whole is fitted in an up-to-date style with a complete system of internal automatic telephones and electric clocks, and there is central heating with oil fuel, and a passenger lift. Generally, the furniture of the building is entirely finished in oak to match the permanent woodwork.

The opening ceremony was performed by the Archbishop of Canterbury, who at Lambeth Palace is a near neighbour.

The Archbishop was received by the Hon. Sir Arthur Stanley (treasurer of the hospital), Sir George Makins (chairman of the War Memorial Committee), and Dr. L. B. Maxwell (warden of St. Thomas's House), and in the dining room representatives of the medical staff and other officers of the hospital were presented. Afterwards, in the club room, Sir ARTHUR STANLEY extended a formal welcome on behalf of the hospital and medical school, mentioning the fact that when the present hospital was opened by Queen Victoria in 1871 the only club accommodation provided for the staff and students of the medical school was in a very gloomy basement under the lecture theatre. Not until twenty years later did the club enter into possession of the quarters recently vacated. After reciting the course of events, already sketched, which led to the provision of the new building, Sir Arthur revealed the fact that the governor who had provided at a very low rate of interest half the sum necessary for the project was Lord Riddell, and that the sum so lent was £30,000. He thought that the governors and staff had once more illustrated the reputation of St. Thomas's for being up to date. In spite of its great age—it would be 700 years next year since the hospital was rebuilt and re-endowed by Peter de Rupibus—St. Thomas's was still in the forefront of medicine, surgery, and nursing. Its present buildings, although erected over fifty years ago, were still unsurpassed in design, and now in St. Thomas's House it had given a lead to other great hospitals to which medical schools were attached.

After Lord RIDDELL had briefly acknowledged the thanks expressed to him for having made the building possible, Sir CUTHBERT WALLACE, dean of the school, spoke briefly on the benefits conferred on the school by a residential club. One of the great advantages was that the first-year student was delivered from the lonely lodgings which had been very generally his lot. The close proximity of the club to the hospital had obvious advantages in professional training, and on the social side the club fostered that corporate life and fellowship which was no small factor in a school's efficiency, for, through men living together and inevitably talking "shop," education went on unconsciously in the hours free from classes and set tasks.

On behalf of the medical and surgical staff Mr. C. A. R. NITCH presented to the Archbishop a cheque for £700 for the furnishing of the club room. He mentioned that a few weeks ago it became clear that the club—or, rather, the amalgamated clubs of St. Thomas's—would have a heavy burden to face in the furnishing and equipment of the club room and the parts of the house other than the residential part (for which the hospital itself is responsible), and to ease the burden the staff had subscribed the amount.

The ARCHBISHOP OF CANTERBURY, in declaring the building open, said that there was no class of young men in the great metropolis whom he regarded with more hope and satisfaction than the medical students in the great hospitals, because, while their life lasted, if their intentions were fulfilled, they would be devoting themselves definitely and unremittingly to the setting forward of the common good and the combating of the common ill. Therefore he welcomed anything which contributed to making their student years more effective and, in consequence, their future professional career more fruitful. His Grace went on to speak of the long association of the Archbishops with St. Thomas's and with Lambeth generally, and the delight that it had been to himself and Mrs. Davidson to afford the hospitality of the beautiful palace garden (which adjoins the new club-house) to the staff and patients.

The LORD MAYOR OF LONDON (Sir Rowland Blades), who with Mr. Sheriff Shepherd was present to represent the commonalty and citizens of the City of London as governors of St. Thomas's Hospital, proposed a vote of thanks to the Archbishop for performing the opening ceremony. In seconding this, Sir GEORGE NEWMAN, chief medical officer of the Ministry of Health, said that the club was introducing into the life of St. Thomas's students a wholly new social opportunity. He recalled one student of old St. Thomas's, when it was situated in the Borough, who had gained an immortal name in English literature—John Keats—and the pathetic story of Keats's loneliness and isolation during his studentship. Social friendship and culture in the best sense were necessary to medicine, and these could only be ensured through university life. One of the endeavours of the twelve medical schools in London was to introduce a true university element and to make medical education in London of university standard. In the medical schools of London there was everything to make for great medical education, with the exception of the social culture enjoyed by Oxford and Cambridge men, which they missed when they came to London. Therefore, he hailed with the more satisfaction this development at St. Thomas's. St. Thomas's was likely to become more and more a medical school where social life as it existed in the old universities was a real and living thing. This was the way in which universities had been built. The social club in one form or another was a constituent element in true university education. He pointed to the old Italian universities. Men of many nations went to Padua and Bologna and other great Italian universities of the Renaissance, not only in order that they might learn things, but that they might participate in the life of the great residential communities which, as history showed, these universities more and more became. St. Thomas's House, said Sir George Newman, was the embodiment of what was begun many years before—an effort to make the social life among the students minister to the truest and highest education. Benjamin Jowett wanted his students to look upon their university institution as a great club, a great school, and a great church. No one who knew what medical education had done for this country and what it had still to do in the not remote future could doubt the proposition that all true medical education must secure in some degree those three elements.

Sir GEORGE MAKINS, chairman of the memorial committee, then requested the Archbishop to unveil the oak overmantel which had been put up as a memorial to those of St. Thomas's Hospital who fell in the great war. He said that on the central panel was inscribed a single sentence: "*Fratres suos huius domus filii pia memoria salutant*," which might be freely translated, "Brothers, the sons of this house salute your memory with reverence." He believed that that sentence would express the spirit of those who used the club room. The names of eighty-three men and one nursing sister would be inscribed upon panels to be erected in the central hall of the hospital itself.

Certain prayers were then offered, and the Archbishop drew aside the flag which had covered the memorial, after which John Arkwright's hymn, "O Valiant Hearts, who to your glory came," was sung.

The very large company present then viewed the building, and many expressions of admiration were heard for a club-house which in its appointments is well up to West End standards, and in its spaciousness exceeds them.

MINERS' NYSTAGMUS.

ADDRESS BY DRS. J. S. HALDANE AND T. L. LLEWELLYN.

DRS. J. S. HALDANE and T. LISTER LLEWELLYN, at a meeting of the Institution of Mining Engineers held at the Royal Technical College, Glasgow, on April 23rd, read an important paper on the causes of miners' nystagmus, in which they combat certain criticisms which have recently been restated against the conclusion now most widely accepted that the condition is due to defective lighting in the mines.

In their paper the authors state that owing to the amount of inconvenience, suffering, and anxiety which it causes among miners, and to the serious burden thrown on the industry by compensation, the prevention of the nervous affection known as miners' nystagmus has become a subject of considerable importance to mining engineers. In order to prevent miners' nystagmus the cause must be removed. The majority of those who have studied the subject closely have concluded that the essential cause is the defective illumination given by the safety-lamps used; and this was the conclusion of the committee appointed by the Medical Research Council to investigate the disease, the corollary being that every effort should be made to improve the lighting. The conclusion that defective lighting is the essential cause of miners' nystagmus has, however, been called in question, particularly by so well known an authority in ophthalmology as Dr. Freeland Fergus of Glasgow, and by Dr. Robson of Penarth.

Defective Illumination.

There is still much to be discovered as to the exact manner in which miners' nystagmus is produced, and as to conditions which favour its development. Yet there is no real reason for doubting that defective illumination is its essential cause, and that it can be almost entirely prevented by an attainable improvement in illumination. They restate the evidence that defective illumination is the essential cause, and then discuss the doubts which have been thrown on this conclusion.

The evidence is, shortly, as follows: As an occupational disease miners' nystagmus is peculiar to coal-miners, and most commonly found among coal-miners working with hand safety-lamps. The photometric measurements carried out showed that the light actually falling on the coal-face during work varied between 0.018 of a foot-candle in safety-lamp pits and 0.09 of a foot-candle in open-light pits (a foot-candle being the illumination produced by a light of 1 standard candle at a distance of 1 foot). As, however, the coal-surface is black, and reflects only about a tenth of the light falling on it, the illumination available for vision is only about a tenth of these figures. In no other kind of work is the available illumination even approximately so low as in the case of coal-miners working with the present ordinary hand safety-lamps, whether flame or electric lamps. This is not merely because the candle-power of the ordinary hand safety-lamp is low, but because, to avoid the great risks from breakage, it must be kept well away from the work, and because so little of its light is reflected from the black coal-surface.

The eye adapts itself in the most marvellous manner to differences in illumination, so that a man can see quite sufficiently well, for, at any rate, rough work, with an illumination which is only a minute fraction of that of daylight. There is, however, a limit to this power of sufficient adaptation, and it is evident that coal-miners, with the present usual types of hand safety-lamps, are working at about this limit.

The clinical evidence in support of this conclusion is very strong. Miners' nystagmus is uncommon in open-light pits and frequent in safety-light pits. It is almost unknown in the purely naked-light coalfields of Somerset and the Forest of Dean. In Scotland the incidence is lower than in England, where safety-lamps are more generally used.

Experimental work by Ohm (Germany) shows that light diminishes and darkness increases the oscillations of the eyes. Improvement of illumination has been followed by a reduction in the incidence of the disease. Miners' nystagmus hardly occurs at all, to judge from American experience, in pits where electric cap-lamps are used. This

is mainly owing to the fact that the light is much nearer to the illuminated surface, and nearness is a factor of enormous importance, since the light thrown on the illuminated surface diminishes in proportion to the square of the distance of the light.

Since miners' nystagmus as an occupational affection does not appear except with excessively defective illumination during work, it seems attributable to the constant strain associated with efforts to see with very dim illumination. In what, exactly, this strain consists is not yet known with certainty, although miners are conscious of extra strain or effort. Probably other sorts of eye-strain due to awkward positions during work increase the effect. It also appears to be the case that in different individuals the limit of defective illumination at which the dimness of the light begins to cause trouble varies, so that under the same conditions of lighting one man will get miners' nystagmus and another will escape. Individual limits in the sensitiveness of the retina and in what may be called the "stability" of the nervous system must come into play, and appear to be in their turn dependent on such conditions as hereditary tendencies, proper feeding, and avoidance of alcoholic excess. Nevertheless, the evidence indicates that miners' nystagmus is almost absent when the illumination is increased to such an extent as is usually attained in open-light or electric cap-lamp collieries.

Other Suggested Causes.

Since occupational nystagmus occurs only among coal-miners, it has naturally been suspected that something emanating from the coal is responsible for the affection, and Dr. Robson and Dr. Freeland Fergus have developed this hypothesis on separate lines. Dr. Robson suspects volatile or gaseous substances, while Dr. Freeland Fergus suspects infection. The authors consider that the objections to these hypotheses are overwhelming. In the case of volatile or gaseous substances, no measurable vapour is given off by coal of any sort at ordinary temperatures.

As regards the question of possible infection from coal causing miners' nystagmus, and the complaint being thus an infectious nervous affection, we think that the evidence is overwhelming that though miners' nystagmus is associated with the handling of coal, it is only when coal is mined under conditions of excessive darkness that nystagmus occurs, so that the darkness, and not any infection emanating from the coal, is responsible.

Conclusions.

In concluding their paper the authors make the following observations. We think that much misapprehension has arisen through confusion between the number of men who obtain compensation for miners' nystagmus and the number of cases of real disability due primarily to miners' nystagmus itself. Claims for compensation have spread as knowledge of the ease with which compensation may be obtained has spread; and, of course, this mode of spread simulates infection. Another factor has been the coincident spread of the idea that miners' nystagmus, however slight, is something which will, if it be allowed to continue, lead to complete disablement or even blindness. Still another factor is that when wages are low, or work slack, it may seem most profitable to go on compensation for miners' nystagmus. Hence the claims increase or diminish as wages diminish or increase. Thus, from the statistics of compensation cases we cannot at present judge with any certainty as to increases or diminutions in cases with real disability.

It is not economically possible to increase the reflecting power of the coal, so the solution of the lighting problem must be, either to bring the light nearer the working area or to increase the candle-power and area of illumination given by the safety-lamp. The electric safety cap-lamp solves the problem in the first manner: the light is brought nearer and the rays fall at right angles to the working area. The lamp moves with the workman, thus providing a uniform and steady field of illumination free from shadows. The illumination given by one of these lamps may be ten times as much as that given by a standard safety-lamp of the same candle-power placed 6 feet away. Unfortunately, the cap-lamp, although universally used in America, has not been taken up well in this country. We strongly advocate this type of lamp, and suggest that there is more chance of success here in Scotland, where the men are used to cap-lamps, than in England, where they would be quite new.

Ill health, fear of unemployment, poor wages, or quarrels with the management must all irresistibly point out to the man the wisdom of following the path of least resistance attained by certification. But over and above these cases some men fail more quickly or suffer more incapacity than others. Dr. Percival thinks there is an inherited predisposition, possibly the result of the inbreeding so common in pit villages. Ohm thinks there is an inherited deficiency in light sense which shows itself in a failure of dark adaptation. There is some justification for these contentions, but it must be remembered that as sons follow their fathers' occupations, members of the same family will be frequently affected, and the large proportion of latent cases in the pits makes it clear that susceptibility to the disease is probably universal.

However much can be done by suitable treatment of those affected, it is essential to emphasize again the desirability of preventing miners' nystagmus by increasing greatly the illumination of the surfaces at which the men are working. In many cases this increased illumination can apparently be obtained with the excellent electric cap-lamps now manufactured in England. Where these are unsuitable, better electric lamps or flame-lamps are needed, and the very important investigations referred to above indicate that with safety flame-lamps of ordinary weight it will shortly be possible to secure such an illumination as will reduce miners' nystagmus to quite insignificant proportions. It seems to us that mining engineers should aim at improving the lighting sufficiently to get rid of the miners' nystagmus bugbear and at the same time increase the working capacity of the miners.

THE COLLEGE OF SURGEONS OF AUSTRALASIA.

A MEETING of surgeons from New South Wales, Victoria, South Australia, Queensland, Western Australia, Tasmania, and New Zealand was held on August 25th, 1926, to consider the formation of an Australasian College of Surgeons. Delegates had been nominated at meetings of surgeons and specialists in the Australian States and New Zealand to act as provisional foundation members of the College. They were Professor F. P. Sandes and Dr. R. B. Wade (New South Wales), Sir George Syme and Dr. A. L. Kenny (Victoria), Dr. H. S. Newland and Dr. Bronte Smeaton (South Australia), Dr. W. N. Robertson and Dr. J. Lockhart Gibson (Queensland), Dr. H. S. Stacy, as proxy (Western Australia), Dr. D. H. E. Lines (Tasmania), Dr. W. E. Herbert (Wellington, New Zealand), and Dr. R. Gordon Craig, as proxy (New Zealand). Sir George Syme was appointed chairman, and it was resolved that the total number of founders of the College should be forty, distributed as follows: ten each for New South Wales and Victoria, five each for South Australia and Queensland, two each for Western Australia and Tasmania, and six for New Zealand. The following representatives were elected:—For New South Wales: A. J. Brady, William Chisholm, C. P. B. Clubbe, R. Gordon Craig, Thomas Fiaschi, Sir Alexander MacCormick, Frank Antill Pockley, F. P. Sandes, E. T. Thring, and Ralph Worrall. For Victoria: Sir James Barrett, F. D. Bird, H. B. Devine, A. L. Kenny, Felix Meyer, Reginald Morrison, D. Murray Morton, R. Hamilton Russell, Sir George Syme, and B. T. Zwar. For New Zealand: H. Ackland, L. E. Barnett, Sir Lindo Ferguson, Sir Donald McGavin, Carrick Robertson, and D. S. Wylie. For South Australia: A. M. Cudmore, Anstey Giles, A. M. Morgan, H. S. Newland, and T. G. Wilson. For Queensland: Donald Cameron, G. P. Dixon, J. Lockhart Gibson, E. S. Jackson, and W. N. Robertson. For Tasmania: D. H. E. Lines and John Ramsay. For Western Australia: F. A. Hadley and W. Trethowan.

The Constitution.

The following constitution was adopted:

1. That the name of the proposed association of surgeons should be "The College of Surgeons of Australasia."

2. That members of the College be designated as Fellows and be entitled to place after their names the letters F.C.S.A.

3. That the College of Surgeons of Australasia should be a voluntary association (that is, not incorporated under a Companies Act or under a Royal charter).

4. That the objects of the College should be: (*a*) To cultivate and maintain the highest principles of surgical practice and ethics. (*b*) To safeguard the welfare of the community by indicating that its Fellows have attained a high standard of surgical competency and are of high character. (*c*) To educate the public to recognize that the practice of surgery demands adequate and special training. (*d*) To promote the practice of surgery under proper conditions by securing the improvement of hospitals and hospital methods. (*e*) To arrange for adequate post-graduate surgical training at universities and hospitals. (*f*) To promote research in surgery. (*g*) To bring together the surgeons of Australia and New Zealand periodically for scientific discussion and practical demonstrations of surgical subjects. (*h*) To do all other things that may help to the better achievement of these objects.

5. That the qualifications for the Fellowship shall be such special training in surgery and such standard of conduct as shall be considered satisfactory by the governing body under the by-laws of the College.

An exordium prepared by Professor Sandes was adopted, subject to legal revision. It contained a paragraph committing the signatory to the acceptance of any penalties for infraction that might be imposed by the governing body under its by-laws—for example, expulsion or lesser penalties. A provisional executive to take the necessary steps to found the College was appointed as follows: Sir George Syme, provisional president; Mr. A. L. Kenny, provisional secretary and treasurer; and Messrs. Hamilton Russell and H. B. Devine. The annual subscription was fixed at five guineas.

The first meeting of the founders of the College was held in Dunedin, New Zealand, on February 5th, 1927, during the second Australasian Medical Congress of the British Medical Association, when Sir George Syme was elected president and director-general, and Sir Alexander MacCormick and Dr. L. E. Barnett vice-presidents. Dr. A. L. Kenny was appointed honorary secretary and treasurer. The tenure of office in each case was fixed at two years. Dr. R. Gordon Craig, Mr. H. B. Devine, Dr. H. S. Newland, Dr. W. N. Robertson, Mr. R. Hamilton Russell, Professor F. P. Sandes, and Dr. Ralph Worrall were elected members of the Council. By-laws were adopted providing for the election of a Council of ten by postal vote of the Fellows of the College, and the appointment of an executive committee of five. For the examination of applications for Fellowship of the College a Credentials Committee was established, to include three members each for New South Wales, Victoria, and New Zealand, and two members each for Queensland, South Australia, Western Australia, and Tasmania. It was decided that each candidate for Fellowship must be nominated by three Fellows of the College from the State in which he resides, who must apply to the secretary for an application form (to be signed by the candidate and his nominators) containing information concerning the candidate's medical training, hospital appointments, special researches, the percentage of his professional activity devoted to surgery or to one of the surgical specialties, and his contributions to medical literature. The candidate would also be required to name five persons as references, each of whom would be asked to supply definite statements about the candidate's surgical judgement and ability, with confidential information about his moral and ethical standing. Inquiry would also be made of Fellows of the College living in the vicinity of the candidate. The State Credentials Committee, acting as a preliminary court, would make its recommendation upon the evidence presented, together with such facts concerning the candidate as may be in the possession of the individual members of the committee because of personal acquaintance. In making such recommendation the Credentials Committee would take into consideration the candidate's (1) character and conduct, as evidence that he reflected in his practice high ideals of service and conduct; (2) specialization in surgery or in one of its departments; (3) extent of experience (not less than five years' surgical practice); (4) hospital appointments; (5) evidence as to competency in surgery; (6) surgical research. After five years from February 5th, 1927, a candidate must possess a senior surgical qualification, but at the discretion of the Council in the case of candidates of exceptional surgical ability or experience this requirement may be ignored. In order to foster the closest possible harmony with the British Medical Association the Credentials Committee is directed to inquire of the Association as to the eligibility of candidates.

It was decided that the Council shall be elected by postal ballot to hold office for two years; but that one-half of the members elected on February 2nd, 1927, shall retire at the end of one year, the Council determining by lot which of its members shall so retire. All members are eligible for re-election. Any Fellow of the College may be expelled, by a two-thirds majority of the general council, for a violation of the constitution and exordium. He will have the right to be heard at the meeting at which his expulsion is under consideration. At the annual meeting the Fellows of the College will receive the report of the Council and the statement of receipts and expenditure; any proposed amendment of the constitution of which notice has been given not less than six months before the annual meeting may be considered. Scientific discussions and practical demonstrations of surgical subjects will be arranged. At least one meeting of Fellows must be held in each State or the Dominion annually, and a distinguished surgeon from another State or the Dominion will be invited to deliver an address. The Council will appoint a committee for each State and the Dominion, selected from Fellows in such State or Dominion, to perform such duties as may be delegated to it by the Council. The Council will draw up regulations for the admission of honorary Fellows from outside the Commonwealth and the Dominion. The executive committee of the Council was authorized to obtain legal advice as to the proper method of formation of a body or bodies to carry out vigilance duties and to form such a body or bodies. The question of a base for the College at Canberra was left to the discretion of the president. It was resolved that all the surgeons and surgeon specialists who had consented to become provisional foundation members in the preliminary meetings for the formation of the College should be elected foundation Fellows.

A meeting of the Council of the College was held immediately after the conclusion of the first meeting of the founders, and the following were appointed to be the executive committee: President, Sir George Syme; honorary secretary and treasurer, Mr. A. L. Kenny; members, Professors F. P. Sandes, Dr. H. S. Newland, and Mr. H. B. Devine. Another meeting was held on February 7th, at which instructions were given to the executive committee to draw up a by-law for the election of junior members of the College, and to appoint trustees to hold property of all kinds in trust for the College. It was resolved to establish an Endowment Fund, and to invite Fellows to subscribe to it. It was also decided that the New South Wales list of provisional foundation members should be placed upon the same basis as regards election to Fellowship as that of New Zealand and Queensland—namely, that the founders of the College in the State of New South Wales should act and report to the executive committee.

The first meeting of the founders was continued on February 8th, when gifts towards the Endowment Fund were received from Dr. Gordon Craig and Sir Lindo Ferguson, and promises from Mr. H. B. Devine, Dr. W. N. Robertson, Sir George Syme, and Dr. G. S. Wylie. It was resolved that any entrance fee imposed should be ear-marked for the Endowment Fund. The question of the word "Australasia" in the title of the College was fully discussed, and all the founders were agreed that the title should remain as adopted by the delegates at the meeting in Sydney in August, 1926. It was generally accepted that Australasia included New Zealand. Mr. R. Hamilton Russell was appointed delegate of the College to the Lister centenary celebrations. The honorary secretary notified members that a parchment roll of membership would be prepared and forwarded to the Union Bank of Australia in each town where a Fellow resided, in order that he might be able to sign the roll. A form of certificate of Fellowship would be designed and sent to the Fellows. The founders also discussed the question of a surgical journal.

South Australia.

[FROM OUR OWN CORRESPONDENT.]

THE MEDICAL SCHOOL.

CONSIDERABLE changes have taken place recently. A great loss has been sustained by the sudden death early this year of the Angas professor of chemistry, Dr. E. H. Rennie. He, with Sir William Bragg, Professor Archibald Watson, and Dr. (later Sir) E. C. Stirling, formed in the year 1885 the advance guard of the original Faculty of Medicine. Contributions to anthropology and investigations of the fauna of Australia, and more especially of the marsupials, by Professor F. Wood Jones, F.R.S., have reflected immense prestige upon the University of Adelaide, but after spending seven years among us he has been attracted to Honolulu by the authorities of the Rockefeller Institute; there one special subject for investigation will be the actual effects so far, and the probable results in the future, of that intimate blending of so many races—Malayo-Polynesian, Iberian, Chinese, Japanese, and Teuton—which has been encouraged by the United States Government in the Hawaian Archipelago. Professor Brailsford Robertson has been "seconded" for one year at least, and lent to the Commonwealth Council of Science and Industrial Research in order to pursue his investigations on animal nutrition; fortunately his coadjutor, Dr. Hicks, the recently appointed professor of human physiology, is at hand to carry on the teaching. The vacant chair of anatomy has been widely advertised, and presumably the same course will be adopted with regard to the chair of chemistry. The jubilee of the University was celebrated last year: the progress made in fifty years in every direction is marvellous, though original research work is mainly confined to the Waite Institute of Agriculture; at the Adelaide Hospital, too, there have been rapid advances. Buildings recently erected now increase the accommodation for patients to 500 beds, exclusive of 220 devoted to infectious and incurable cases; in addition, the special obstetrico-gynaecological department will in all probability shortly be commenced. Meanwhile more suitable housing has been provided for the resident medical officers, who now number over twenty, as compared with two only some forty years ago.

THE BRANCH.

For a dozen years or so the Branch (South Australian) has been accommodated in the buildings originally acquired by members of the profession, under the title of the "British Medical Hall Co., Ltd." These buildings were to be transferred to the Branch so soon as satisfactory incorporation could be attained, but this process involved some legal difficulties. Now the premises have been sold, and the directors of the company have committed themselves to the purchase of a block of land on North Terrace, facing the University. Upon this block it is proposed to erect a building of several stories; it is to be made to pay for itself by the leasing of suites of rooms for members of the medical and dental professions. It is a bold enterprise for a small medical community such as ours to venture upon, but if not immediately remunerative it will constitute a valuable gift to the next generation. The Branch has been presided over recently by Dr. de Crespigny, who has just returned from a holiday in Europe, and by Dr. H. H. E. Russell. The Lister Orator for 1926 was Professor Wood Jones, who gave one of those characteristic addresses which have stamped him as a remarkable speaker and thinker.

IRREGULAR PRACTICE.

The troubles met with in the old country have taken root here also. The newly formed Association of Botanic Medical and Naturopathic Practitioners, whose diploma is spread out before me, bases its claim for recognition upon a still unrepealed Act of Henry VIII. A deputation waited upon the Chief Secretary, asking for legislation to enable them to be registered as a body entitled to practise their peculiar arts, to give certificates of health, and, what is still more necessary, certificates of the cause of death. Fortunately the matter was referred to the Medical Board for its opinion, and its report apparently satisfied the Labour Government that it would not be wise to obey the deputation's behest. The Crown law officers too have received instructions to enforce the provisions of the Medical Act as regards unqualified persons assuming the title of doctor. Curious divergence of opinion as to the reading of the Act has been evinced by the judges of first instance before whom the offenders have been brought, but doubts have been speedily cleared up on the Crown appealing to the Supreme Court.

New Zealand.

[FROM OUR CORRESPONDENT.]

WELLINGTON HOSPITAL.

DR. D. M. WILSON has written a short history of the Wellington Hospital, which is now being enlarged at a cost of £140,000. In 1841 the New Zealand Land Company had the responsibility of treating the sick in the new colony, but it was apparent that soon the colonists themselves must assume this responsibility. Governor Grey arrived in 1845, and set about the task of enforcing law and order. The settlement at Wellington lived in fear of Maori uprisings and there had been occasional skirmishes in the vicinity, and Governor Grey realized that if there were to be peace between European and Maori each must soon learn to understand the other. He proposed, therefore, to use a hospital as a colonizing agency, and in a dispatch to Lord Grey, Colonial Minister in London, Governor Grey declared his intention of establishing a hospital where Maori and European might be treated together and a bond of friendship formed between the two races. The statesmen had more foresight than the general public, for there was no public demand for a hospital. Indeed, a prominent colonist, Mr. Brady, wrote to the *New Zealand Journal* in London, stating that the climate of Wellington was so healthy that "the doctors are compelled to turn either farmers or publicans, as they have nothing to do but to attend upon lying-in women."

A report of the work of the hospital sent by the Governor to the State Department in London on March 6th, 1848, shows that already the hospital had done much "to gain the attachment and promote the civilization of the natives." The hospital was provided with a steam-bath room and a sweating room, and a hot-water bath, to which the patients were introduced upon first admission. As the natives were admitted from their pas, where sanitary arrangements were conspicuous by their absence, the ablution facilities at the hospital were not without significance for them. The hospital had many vicissitudes, including damage by an earthquake in 1848, with intermittent tremors extending over a period of four days, which partially destroyed the building. The first and somewhat primitive hospital in Wellington is, however, worthy of remembrance as a noteworthy civilizing agency which played a great part in cementing two races in harmony and goodwill. The work done in the hospital was also noteworthy. For instance, a Maori chief of high rank was operated upon by Dr. Fitzgerald for the removal of a large tumour between the shoulders, and this patient was anaesthetized with sulphuric ether. When it is remembered that this anaesthetic was not announced to the world until November, 1845, in an American medical journal, that Syme did not use it until 1847, and that New Zealand was at the ends of the earth, it says much for Dr. Fitzgerald and his unnamed colleague that a Maori thus early received the benefit of the new discovery. In 1849 Earl Grey presented to the Colonial Hospital of Wellington a large engraving of Her Majesty Queen Victoria so that the natives might see the great white chieftainess to whom they gave their splendid allegiance and devotion, and not less to her successors.

PHYSIQUE OF SCHOOL CHILDREN.

A physical survey of 20,000 New Zealand school children has been completed, and compares favourably with a similar survey undertaken in 1913. The conclusions may be summarized thus: (1) New Zealand school children show

superiority in height and weight when compared with the available statistics relating to those of Australia, Great Britain, America, and Toronto. (2) New Zealand town school children have definitely improved in height and in weight during the years 1913-25. (3) Sitting height relatively to standing height is less in New Zealand children than in Glasgow children. (4) There is no noteworthy difference to be found in height and in weight of New Zealand children grouped according to birthplace of parents. (5) Children of farmers are tallest and heaviest, and children of professional men are almost as tall as children of farmers, but show no excess in weight over the average. (6) The height and weight of children in rural schools are greater than in city schools, and the average physical development of children with good mental attainment is greater than of those with inferior ability.

About a thousand children at Christchurch have been tested for tuberculosis, and a beginning is being made at Wellington and Dunedin. Dr. Blackmore, general superintendent of tuberculosis institutions, states that there are several delicate and non-injurious tests which show infection, and recommends special treatment for the positive cases. There is good reason to suppose that a large majority of cases of adult tuberculosis have been infected in childhood, although Nature often stifles the infection in children. The open-air school movement is making headway.

Scotland.

Royal Simpson Memorial Hospital.

At the annual meeting of the Edinburgh Royal Maternity and Simpson Memorial Hospital, held in the City Chambers on April 21st, reference was made to the proposal of the managers of the Royal Infirmary that when the grounds to the west of the Infirmary, at present occupied by George Watson's College for Boys, should become available in about five years, a complete obstetric and gynaecological department, with some 250 beds, should be erected there, and should be named the "Simpson Memorial." The proposal involved complete amalgamation, but under the most favourable conditions the hospital could not be ready for occupation for at least seven years from the present time, and meantime the Maternity Hospital must be maintained. A subscription income of at least £5,000 a year was required for ordinary maintenance. A source of revenue had recently been lost to the hospital because, in consequence of the extended period of training for midwives lately imposed by the Scottish Central Midwives Board, fewer pupil nurses now presented themselves for training. The directors of the hospital had therefore found it necessary to offer free training to such pupil nurses as had already had a general training in nursing. Nevertheless, in spite of the difficult financial circumstances of the hospital, any curtailment of its activity would be impossible in view of the great extent to which recourse was had to it by the public. The number of cases treated in the hospital during 1926 showed an increase of 172, and the number of women delivered in connexion with the hospital and its Leith branch represented 37.3 per cent. of the total births in Edinburgh, an increase of 1.8 per cent. over the previous year. Professor George Robertson, President of the Royal College of Physicians, in moving the election of the office-bearers, remarked that, in thinking of the centenary of the birth of Lister, it was natural to refer to the other great benefactor, Sir James Y. Simpson. The improvement of surgery had only been rendered possible by the happy combination of anaesthetics and asepsis, and everyone knew what an important part Sir James Y. Simpson played in the introduction of chloroform. The decision of the directors to give free training to all pupil nurses who had already had their general training was a simple act of justice. The great voluntary hospitals did not pay their probationer nurses adequately for the services they rendered. It was true that the nurses were being trained, but they were also working hard all day to keep the hospital running, and for these services the probationer nurse was entitled to payment on a more adequate scale than she got at present. The Simpson Memorial Hospital in this respect had taken a step in the right direction, and he appealed to the generosity and justice of the public to see that subscriptions were increased.

Small-pox in Dundee.

At a meeting of the Dundee Public Health Committee on April 18th Dr. Burgess, medical officer of health for Dundee, said that there had been up to date 107 local cases of small-pox. These had all been of a mild nature and probably all would get better, though some would be slightly marked. It was unfortunate that during the past fortnight there had been a falling off in the number of people presenting themselves for vaccination. This was serious because, unless people were generally vaccinated, the outbreak might hang on for an indefinite time. At a meeting of the Forfar District Committee Dr. Sinclair, medical officer of health for Forfar county, obtained authority to offer free vaccination. The chairman of the committee, Colonel Fotheringham, remarked that even if the local authority had to pay 2s. 6d. for vaccination of each case, this would be a great deal cheaper than having an outbreak of small-pox in the district.

Road Accidents in Scotland.

From the Home Office return regarding the number of street accidents in 1926 it appears that out of the 138,774 people killed and injured in Great Britain during 1926, 12,684 were killed or injured in Scotland. Of these, 579 were killed and 12,105 injured. The details of these were: caused by omnibuses and motor coaches, 1,774 and 180; by tramcars, 1,147 and 15; by other vehicles, 6,940 and 325; horse-drawn vehicles accounted for 630 injured and 26 killed; pedal cycles accounted for 1,614 injured and 33 killed. Six police districts of Scotland—namely, Arbroath, Montrose, Nairn county, Hawick, Galashiels, and Lerwick—had no fatalities to report. The highest number of deaths (119) occurred in Glasgow; Lanark county followed with 75, and Edinburgh with 47; Dumbarton accounted for 31, Stirling county had 30, Fife county 22, and Renfrew county 21.

The V.A.D. Movement.

Dame Oliver, controller of the V.A.D. Department of the British Red Cross Society, in an address to the annual meeting of the City of Glasgow Branch of the Red Cross Society on April 8th, said that to complete the strength of the Naval, Military, and Air Force hospitals 5,000 men and 20,000 women under the Red Cross were required. On the population basis Glasgow had been asked to provide 100 men and 200 women, but at the present time only 5 men and 33 women were available. The work consisted in the nursing of sick and wounded in hospitals, and the country desired that the branches, such as that of Glasgow, should enrol and train the personnel in the necessary technical experience. If Great Britain was again involved in war hostilities would commence by air attacks on a large scale and casualties in crowded cities would be very heavy. It was impossible suddenly to train the personnel for such an emergency. A secondary object of the Red Cross Society, through the Voluntary Aid Detachments, was to mitigate sickness among the civil population at all times. Colonel G. H. Edington said that in 1926 the financial position had slightly improved. With a view to stimulating interest in detachments the Glasgow Committee had inaugurated a scheme under which the city had been divided into areas, each of which would be in charge of a small committee.

Dundee Hospitals.

At the quarterly court of governors of Dundee Royal Infirmary it was intimated that the total number of patients who had been treated in the wards during 1926 was 8,093, as against 7,729 in 1925. The expenditure had been £50,884, and the amount in hand at the close of the year was £5,789. In the maternity department the number of patients had risen from 257 in 1913 to 676 in 1926; a new building to provide thirty-five beds was in course of construction. There was urgent need for a new dispensary.

The annual report of Dundee Infant Hospital states that the average daily number of children in hospital during the past year had been thirty-one. The Dundee Royal Infirmary has received a gift of £5,000 from Mrs. Ferrie of Cupar in memory of her sisters.

SCOTTISH UNIVERSITIES PARLIAMENTARY VACANCY.

An analysis of the voters outside the university towns who are entitled to take part in the Scottish universities by-election shows that these are scattered through every constituency in Britain, with the single exception of the eastern division of Norfolk. In the Marylebone district of Harley Street and Wimpole Street there are over 200 voters who presumably are, in the main, doctors of medicine. An interesting point regarding the right to vote arises in connexion with a by-election. Graduates may have three qualifications for a parliamentary vote: (1) a residential qualification; (2) a business premises qualification; and (3) a university qualification, and at a general election they may vote only in respect of two of these. Electors who at the general election chose to exercise the qualifications in regard to residence and business premises were debarred from voting in the universities constituency. Such persons, however, are not debarred from voting for the university member now in the by-election.

England and Wales.

LORD LISTER AND NORWICH.

DR. MICHAEL BEVERLEY has contributed to the *Eastern Daily Press* a note about the reception of the Listerian system in Norwich in the seventies. Dr. Beverley went to Edinburgh in 1871 with an introduction to Mr. Lister from his friend Mr. William Cadge. Dr. Beverley was cordially received, and spent a month in watching Mr. Lister's hospital and private operations, and familiarizing himself with the antiseptic system, in which the carbolic spray was then used. On his return to Norwich he carried this out for Mr. Cadge, who at once adopted it, although at the time he had few followers, his hospital colleagues declining to use it. The house-surgeon, however, became an enthusiast, and used the spray and antiseptic dressings in Mr. Cadge's cases. In this way, Dr. Beverley says, the Norfolk and Norwich Hospital was probably "the first provincial hospital to adopt the antiseptic system, and that great surgeon, William Cadge, was one of its first, if not the first of its pioneers." In a communication to us Dr. Beverley recalls that he was present at Lister's introductory address at King's College, "a never-to-be-forgotten function—at once so disappointing to the packed audience of London surgeons, but so characteristic of Lister's thoroughness in all he undertook." The address was on the nature of fermentation, an understanding of which was, Lister pointed out, the foundation stone of the antiseptic system. He illustrated the general principles by describing and demonstrating the lactic acid fermentation of milk. The disappointment of the packed audience to which Dr. Beverley refers was due to the apparent remoteness of the topic, but the lecture, as Dr. Beverley says, was characteristic of Lister's thoroughness in all he undertook. Dr. Beverley illustrated his recent note in the newspaper by a facsimile of a letter, dated October 13th, 1904, in which Lister, while expressing his regret at his inability, owing to the state of his health, to be present at the dedication of the Cadge memorial window in Norwich Cathedral, which he had been asked to unveil, said that he would be glad to take part "in honouring the memory of one whom I respected so greatly as William Cadge," and sent a subscription.

EXTENSION OF KING EDWARD VII HOSPITAL, WINDSOR.

An extension of the King Edward VII Hospital at Windsor was opened by Their Majesties on April 20th, and was named the King George V Wing. This hospital, formerly known as St. Peter's, which serves not only Windsor and Eton but a large surrounding district, was originally founded as a dispensary in 1818; it became an infirmary in 1857, and after many extensions was moved to its present building in 1909. Since then various additions have been made, including an *x*-ray department, a pathological laboratory, special wards for women and children, an orthopaedic annexe, and nurses' quarters. The new wing brings up the total bed accommodation to 125, and the hospital now has fifty beds for men, forty for women, twenty for children, and fifteen private wards for patients of small means. These private wards are stated to be in great demand. The cost of the new wing, including equipment, furniture, and linen, has amounted to £11,780, the whole of which has been subscribed. A new hostel annexe for nurses, however, has still to be provided. An address to Their Majesties was read by Viscount Burnham, chairman of the governing body; and the King, in reply, after a reference to the association of his family with hospital work in Windsor, said: "The remarkable progress in the activities of your hospital during the short space of twenty years bears striking testimony to the zeal and energy of the authorities, as well as to the public spirit and generosity of its benefactors. But there is no finality in hospital work, and you remind us that, at the very moment when the new extension is completed, you are faced with the need for yet another addition, a new hostel for nurses, to build which I hope and trust the necessary funds will soon be available." The King and Queen were then taken round the hospital by Viscount Burnham, Dr. W. H. W. Attlee, senior physician, Sir Joseph Skevington, senior surgeon, the matron, and others. After having spoken to several of the patients, the King expressed a wish to see the medical staff who gave their services to the hospital, and they were accordingly presented. It was announced that one bed in the new wing had already been endowed with £1,000 by Mr. and Mrs. Noel Trotter of Ascot, in memory of Lord Lister and in celebration of the royal visit.

THE BOLINGBROKE HOSPITAL, WANDSWORTH COMMON.

The new wing of the Bolingbroke Hospital, which has been erected at a cost of nearly £100,000 in memory of the late Mr. William Shepherd, was opened on April 4th. By this extension a new block of wards is provided, the out-patients' department has been reconstructed, and new residential accommodation is made available for nurses. The Lord Mayor and Lady Mayoress attended the ceremony and opened the new operating theatres. Sir Henry Jackson, M.P., treasurer of the hospital, said that the new wing had been opened entirely free from debt in spite of the financial stringency of the past two years. An additional annual income of £9,000 would be necessary for its upkeep, but it was hoped that this money would be contributed by public generosity. The final balance of the building fund was obtained at a festival dinner at the Mansion House on April 1st, when the Lord Mayor gave a brief history of the hospital since its foundation in 1881, and appealed for £15,000; towards the end of the evening it was announced that over £18,000 had been received. It was stated that during 1926 there had been 1,130 in-patients at the Bolingbroke Hospital, and 36,000 out-patient attendances; 1,200 major and 1,387 minor operations had been performed.

CENTRAL MIDWIVES BOARD.

At the meeting of the Central Midwives Board for England and Wales, on April 7th, Sir Francis Champneys was re-elected chairman; other re-elections and elections to the Board were: Miss Edith Greaves, Miss Ada Davies, Dr. F. N. Kay Menzies, and Mr. A. B. Maclachlan by the Ministry of Health; Mr. Victor Bonney, M.S., F.R.C.S., by the Royal College of Surgeons; Mr. Robert Arthur Lyster, M.D., D.P.H., by the Society of Medical Officers of Health; Mr. Charles Sangster, M.R.C.S., L.S.A., by the Society of Apothecaries of London. The revised lists of examiners, lecturers, institutions where lectures are delivered, and institutions, homes, and midwives at which and under whom midwives may be trained, were approved for the year ending March 31st, 1928. Dr. Lyster moved, and the Board approved, the following resolution:

> That, it appearing that by the combined operation of Section 14 (1) of the Midwives Act, 1918, and Rule E. 20 of the Board's rules, a local supervising authority may be called upon to pay the fees of a registered medical practitioner called in by a midwife in a case of emergency, without regard to

the time when medical assistance is rendered, and it also appearing that a regulation of the Ministry of Health makes it illegal for a local supervising authority to pay the fee of a registered medical practitioner for assistance rendered after the lapse of a period of four weeks from the date of the confinement, it is desirable that the Board approach the Ministry of Health with a view to seeing if the regulation of the Ministry of Health can be amended so as to bring it into harmony with the Board's rules.

Ireland.

DEPUTATION TO THE MINISTER OF LOCAL GOVERNMENT AND PUBLIC HEALTH.

A DEPUTATION from the Irish Medical Committee, consisting of Drs. R. J. Rowlette, A. McBride, J. B. McClancy, J. P. Shanley, M. O'Brien, T. Hennessy, and Mr. C. H. Gick, waited on the Department of Local Government and Public Health in connexion with the following matters: (1) The transfer of medical officers under Section 5 of the Local Authorities (Officers and Employees) Act, 1926; (2) private patients in county and district hospitals; and (3) the remuneration of registrars of births, deaths, and marriages. The deputation was received on behalf of the Minister for Local Government and Public Health (who, owing to another engagement, was unable to be present) by Mr. McCarron, secretary, and Dr. E. F. Stephenson, chief medical adviser, of the Department of Local Government and Public Health. With regard to the transfer of medical officers under Section 5 of the Local Authorities (Officers and Employees) Act, 1926, the deputation urged that the Minister should refuse to sanction any transfer made as promotion unless the officer transferred was entitled to promotion on the grounds of merit and long service, in accordance with the intention of Section 5 of the Act. Mr. McCarron and Dr. Stephenson agreed that the section quoted had for its object the promotion of existing officers on the lines stated by the deputation, and undertook to convey the views of the deputation to the Minister. With regard to the admission of private patients to county hospitals, the deputation, whilst satisfied with the draft regulations forwarded by the department to the county health boards for adoption, pointed out that these bodies did not show any desire to put them in force and thus enable the doctors attached to the hospitals to arrange with private patients for payment for their medical attendance as provided for in the draft regulations of the Department of Local Government and Public Health. The deputation was informed that the department would use its influence in the first instance to have the draft regulations adopted by the health boards, and in the event of their refusal it would consider further representations from the profession. In connexion with the increased remuneration for registrars of births, deaths, and marriages, the deputation was invited to prepare a memorandum stating the position of these officials. Mr. McCarron and Dr. Stephenson considered the fees paid at present for this work were inadequate. More than 90 per cent. of the registrars in Ireland are dispensary doctors and the registration areas correspond to their dispensary districts.

INCREASED AMOUNT OF SICKNESS BENEFITS.

Lady Aberdeen, president of the Slainte Approved Society, in moving the adoption of its annual report, referred to the very high rate of sickness benefit paid to insured persons as the result of their being certified as incapable of work owing to some rheumatic complaint. The report for the year ended December 31st last stated that during that period claims were paid to 6,508 members, as against 6,060 in 1925, the total paid in benefits being £32,518 3s. 2d., as compared with £30,352 18s. 4d. The committee of management was much concerned regarding the inadequacy of funds for the payment of sanatorium benefit to insured persons, and the question was receiving the consideration of the Approved Societies Association. During the year further progress had been made and the membership maintained, notwithstanding the large number of members ceasing insurance through various causes. The financial statement showed a credit balance of £38 5s. 7d.

Correspondence.

THE USE OF TUBERCULIN.

SIR,—In your issue of April 2nd (p. 641) Sir Robert Philip says that many persons seem to regard the subject of tuberculin as a *terra incognita*, but that he has used it much and consistently since its introduction in 1890, and is puzzled to understand the difficulties frequently expressed. Sir Robert Philip, however, does not give us definite information upon the exact methods he has adopted for diagnosis and treatment. There are many different ways of administering tuberculin, and many points upon which there is extreme diversity of opinion. In diagnosis there is the cutaneous, intracutaneous, and subcutaneous method. In treatment there is the method of obtaining allergy and the quite opposite method of creating great and lasting immunity by large doses. There is also the method by inunction. Would that Sir Robert Philip would give, not only his Edinburgh students, but the whole world concrete facts and deductions from his own ripe experience. What are his views upon the idea of danger arising from the subcutaneous injection of tuberculin for the early diagnosis of tuberculosis in accordance with Koch's exact instructions? This is a question he can easily answer if he has used the method. I say, after an experience over a period of thirty-five years in many hundreds of cases, that there is no danger.

Sir Robert Philip expresses himself as being puzzled to understand "the difficulties frequently expressed" with regard to the use of tuberculin both for treatment and diagnosis. From a large experience I say positively that there are difficulties, and great difficulties, in the administration of tuberculin if the method of large doses approved by Koch himself and his best known pupils is used in every chronic form of simple tuberculosis.

Sir Robert Philip tells us that the properties and value of tuberculin are demonstrated to all students graduating at the University of Edinburgh, and that tuberculin is in daily use in the several medical institutions which are linked up with the University department. Is it given to ambulatory cases? If so, by what method and with what results?

In the BRITISH MEDICAL JOURNAL of April 21st, 1923, I used these words: "I do not approve of his [Petruschky's] method of dosage, and I do not trust his method of inunction." I believe that Sir Robert Philip advocates Petruschky's inunctions, as he formerly advocated Béraneck's tuberculin. In the article quoted I also said: "I can only be convinced by the details of protocols in evidence that Sir R. Philip can in any way approach the success I have achieved by large doses given subcutaneously."

I have placed my cards on the table in the public interest, and it would be a great public service if Sir Robert Philip would do the same. We now want evidence, not opinions or impressions. Would it not be well that the evidence both of Sir Robert Philip and myself should be submitted to an unbiased tribunal of research workers and statisticians, in order that the true value of tuberculin in the diagnosis and treatment of tuberculosis may be ascertained?—I am, etc.,

London, N.W.1, April 18th. W. CAMAC WILKINSON.

STATISTICS OF TUBERCULOSIS.

SIR,—According to statistics tuberculosis is dying out; but statistics can prove anything. A patient who had been some time in the sanatorium was sent home on April 16th and died on April 18th, a couple of days after being discharged. I suppose according to the statistics he would be put down as "improved," not as a death.

I think I can safely say 50 per cent. of so-called cases of tuberculosis in the sanatoriums are not tuberculosis. I believe other practitioners will agree as to the value of statistics and sanatoriums.—I am, etc.,

Woodlands, Doncaster, April 20th. T. L. ASHFORTH.

VENESECTION.

SIR,—Amongst the many questions raised by the discussion on venesection reported in the BRITISH MEDICAL JOURNAL of April 16th (p. 721) is that of the explanation of the fact that venesection, after having remained so long in vogue, should have fallen into almost complete disrepute. Not to bleed a patient with "sthenic" pneumonia would at one time almost have laid the doctor open to a charge of malpraxis, if the patient died. About thirty or forty years ago, on the other hand, a doctor's reputation might have suffered if he bled the patient and the patient died. Indeed, hospital patients did usually die when they were bled, or given champagne, for both were reserved for really desperate cases. Forty years earlier how hard it was to discontinue the custom of bleeding in country districts in certain diseases is well illustrated by the following circumstances, which I heard from my father (*Reminiscences of Sir H. Weber*, 1919, p. 48):

> About 1850, when Sir J. Y. Simpson paid a visit to the Klinik at Bonn, my father was appointed by his uncle, Professor Friedrich Nasse, to show him everything he cared to see. Simpson explained that the venesection treatment of pneumonia had been completely abandoned at Edinburgh, and asked my father what would happen if he were to treat pneumonia patients at the village of Kessenich (the poor of which were under the care of the Bonn Klinik) without bleeding. My father answered that if the patient died without being bled the student or assistant from the Klinik who had attended the case would probably be waylaid and unmercifully beaten. This actually happened at Kessenich soon afterwards, when, with Professor Nasse's consent, bleeding was discontinued.

Now, bleeding for various conditions has become relatively common again. Recently I had a patient with the extremely rare maldevelopment known as coarctation of the aorta (stenosis of the aortic isthmus). I looked up the first two records of cases in which any clinical details were given (Morgagni, 1761, and R. Graham, 1814), and found that the three cases, according to the *clinical* notes, resembled each other in nothing excepting that all three were bled and all three died (my case had sudden apoplexy from rupture of a cerebral aneurysm).

Very important were Dr. H. French's remarks regarding periodical abundant blood-letting for erythraemia (splenomegalic polycythaemia). I would, however, like to know whether there are any contraindications for bleeding in this chronic disease, which perhaps may be regarded as a generalized overgrowth in the haemopoietic system, analogous to the overgrowth in the cutaneous system in ichthyotic patients. Certainly, in elderly debilitated subjects of the disease I would be very cautious in regard to suggesting treatment by benzol, phenylhydrazine, or even by the application of x rays to the long bones.—I am, etc.,

London, W.1, April 22nd. F. PARKES WEBER.

SIR,—Dr. Herbert French's remark, quoted in your issue of April 16th (p. 722), that physiologists teach that venesection is useless, is by no means a correct statement of physiological opinion. Professor McDowall has already pointed out one way in which venesection can be shown experimentally to be of value, but neither he nor any speaker in the discussion mentioned another factor which plays an equally important part.

If, in man, about 500 c.cm. of blood is withdrawn within a short space of time, the blood volume is temporarily lessened by about 10 per cent. The initial volume is rapidly made up by the passage of fluid into the circulating blood, whereas the red cells are not replaced for at least some days. The result is a lowered red cell content; in consequence there is a decrease in the viscosity of the blood, for this depends principally on the red cell content. The fall in viscosity is about 10 to 15 per cent. in these circumstances, for the viscosity falls somewhat more rapidly than the cell content in suspensions of concentration comparable with normal blood.

The work done by the heart varies directly with the viscosity, and also with the arterial pressure maintained; if, after the bleeding, the pressure is rapidly restored owing to peripheral vaso-constriction, it follows that the work required to be done by the heart will be diminished in proportion to this new viscosity, or by 10 to 15 per cent. This diminution in the work of the heart, maintained over a period of several days until the red cell content approaches the normal, is by no means negligible.

The work done by the right side of the heart will, of course, depend on this new and lessened viscosity and on the pulmonary pressure.—I am, etc.,

Department of Physiology, Edinburgh University, April 24th. ERIC PONDER.

THE PUBLIC, THE DOCTOR, AND THE MASSEUSE.

SIR,—The attention of the Council of the Chartered Society of Massage and Medical Gymnastics has been called by several of its members to the recent correspondence in your columns under the heading of "The Public, the Doctor, and the Masseuse."[1] In the absence of specified instances it is, of course, impossible to say how closely the allegation that diathermy and phototherapy is "constantly" being carried out by masseuses with much danger to the patients corresponds with fact, but it may not be out of place to remind your readers that the members of the Chartered Society, before receiving their certificates, pledge themselves "not to undertake *any* case except under the direction of a registered medical practitioner."—I am, etc.,

E. C. PERRY,
Chairman of the Council, the Chartered Society of Massage and Medical Gymnastics.

London, W.1, April 25th.

LISTERISM IN LONDON.

SIR,—In some of the addresses given during the Lister celebration a much too unfavourable view was taken of the position of surgery in London at the time of his advent. To accept the more severe strictures would be, not only to ignore the work of many of those who had adopted the methods, but would be a reflection on the influence of Lister himself.

Amongst those who sought the great master in 1868 were two young London surgeons, Marcus Beck and Henry Howse. The former became attached to University College and the latter to Guy's. When Howse became assistant surgeon in 1870 the wound was irrigated by a drip of carbolic lotion from a container suspended above the table. Later the hand spray replaced the drip, and was worked by relays of assistants. Howse, as all who knew him will recall, was exacting in attention to the most minute details, supervising or himself making the dressings in all important cases. Imbued with a true spirit of research, and being a sound pathologist as well as a practical surgeon, he rapidly though cautiously enlarged the field of operative surgery. When I became one of his dressers in 1874 we dressed as many as four cases of excision of the knee in an afternoon. This was an operation rarely performed at that time on account of the mortality rate. Howse, by attention to the details of Lister's methods and by his fine technique, brought the operation to such perfection that failure was unknown. He had raised the operation of gastrostomy from something like a 90 per cent. mortality to one of comparative safety. And so with ovariotomy, amputations, trephining, etc. So confident had Howse become in the security of the antiseptic methods that I have seen him take a child from the erysipelas ward, amputate the thigh, and return him to the same bed. These personal experiences occurred three years before Lister came to London, and the field had increased enormously by the time of his arrival. No better tribute could have been paid to the value of the new methods, and no one rejoiced more than Lister himself. On Lister's coming to London the two men soon became on friendly terms, for in the pupil the master recognized one who had demonstrated the truth of his principles and had become one of the pioneers into the unexplored regions of surgery.

Howse's junior colleagues followed his lead, so that by 1877 all but the three seniors had adopted Lister's methods.

Of the work at University College the one who could tell us most has, alas! gone to his rest; however, Godlee writes thus in the biography: "But the only two London surgeons in early days who carried out the treatment thoroughly

[1] See BRITISH MEDICAL JOURNAL, December 11th and 18th, 1926, pp. 1143 and 1196, and January 8th and 22nd, 1927, pp. 81 and 164.

and efficiently in hospital practice were Howse of Guy's and Marcus Beck of University College." At St. Thomas's McCormac and Croft were exponents of the method, and the former had successfully employed them in the Franco-Prussian war of 1870. The oncoming surgeons at this hospital were, I had reason for knowing, firm believers.

In tracing the growth of Listerism in Germany, it will be noticed that Godlee begins with Volkmann in 1872, so London can claim a two years' start, and that with the complete method learnt under Lister himself.

It is a remarkable fact that while in Germany Listerism found ready acceptance, it was not until 1878 that carbolic was used in Paris; yet it was here that Pasteur laid the foundation on which Lister built.—I am, etc.,

London, W.1, April 16th. CHARTERS J. SYMONDS.

TRAUMA AS A CAUSE OF AURICULAR FIBRILLATION.

SIR,—There are several points in the letters of Dr. Brockbank and Dr. Stephens (April 9th, p. 699) which merit a reply.

It is gratifying that the former is prepared to modify his original view and is "inclined to believe that strain affecting an already diseased ventricle or a heart with some abnormality might induce auricular fibrillation secondarily," but, of course, as he says, "proof is difficult."

There will always be many instances in which it is far from easy—or may even be impossible—to prove any causal relationship between the physical strain and the fibrillation, but our object was to demonstrate that this causal relationship does sometimes exist and that there are cases in which the relationship between the strain and the fibrillation can be reasonably inferred.

Dr. Brockbank stipulates that some proof is required that fibrillation was not present before the physical trauma. Such evidence must be objective, or subjective, or both. In Case IV both were present. This patient is a medical man who is well aware when fibrillation is present: he knows when it begins and when it ceases. In 1922 this man, by a happy chance, was examined for life insurance, and his heart was passed as normal in every respect. The next day he ran hard for a train and was at once conscious of the specific change in cardiac rhythm, and when I examined him fibrillation was present. In 1926 there was a similar sequence to the same form of effort. Here we have an example of cause and effect, and convincing evidence that the heart rhythm was normal immediately antecedent to the sudden physical strain.

Since the publication of our paper (J. H. and H. W. J.) a medical man has written to me giving his own personal experience. His first attack of fibrillation followed a day of strenuous cycling, a form of exercise in which he had not indulged for three years. His second, third, and fourth attacks of fibrillation followed unwontedly severe exercise—such as vigorous sawing and swinging the car. Here again we have a medical man who knows when his heart is fibrillating and who is quite conscious that the fibrillation was not present before the physical strain.

If I understand Dr. Stephens aright he challenges the view that trauma may induce fibrillation, but as he does not do more than state his disagreement we must just leave it at that. He is, however, more articulate—although perhaps somewhat misleading—in his reference to Cases IV and V, as will appear evident from a careful perusal of our paper. His reference to "carious teeth and puffy inflamed gums" as conducive to auto-intoxication is interesting but irrelevant and has no direct bearing on the point at issue—namely, whether physical trauma is not in some cases a factor in the production of fibrillation of the auricles.—I am, etc.,

Liverpool, April 20th. JOHN HAY.

SIR,—Professor Hay and Dr. Wallace Jones have propounded two statements (March 26th, p. 559) for our acceptance. The first proposition is to the effect that sudden strain may induce auricular fibrillation in a diseased heart. I do not desire to quarrel with this statement, which is and always has been generally accepted. The second statement is that strain may induce auricular fibrillation in an apparently healthy heart. What is the evidence which justifies such a sweeping assertion?

The exact pathological condition underlying auricular fibrillation is unknown. It is, however, a fact, based on an enormous amount of both clinical and pathological evidence, that wherever we find auricular fibrillation there we also find a damaged heart. The evidence, therefore, is that in order to induce fibrillation it is essential that the heart must be damaged beforehand. In face of this fact it is obvious that before it can be admitted that there are cases which do not conform to this rule it is imperative to make sure both that fibrillation did not exist before the trauma and that the heart is not damaged.

Case I we can at once exclude, because the factor which produced fibrillation is a great deal more than ordinary trauma. Case V may also be excluded, because in this case it is not disputed that the heart had already been damaged. In Case IV too we can assume that the heart had been damaged. The patient had a history of heart trouble and probably of fibrillation some years before fibrillation was again induced by trauma. In fact, this case seemed to be one of those frequently seen of paroxysmal fibrillation induced by overexertion which ultimately becomes chronic.

There remain only Cases II and III, on which the authors rely to support the thesis that fibrillation may be induced by trauma in an apparently healthy heart. In these two cases there is no evidence that fibrillation did not exist before the trauma. There is no evidence that the cases were not syphilitic—a Wassermann test is not mentioned. A case of fibrillation came under my observation recently, supposed to have been produced by trauma, which gave a double plus (++) Wassermann reaction, and the patient ultimately admitted having had syphilis. Again, no particulars are given in these cases in regard to character of sounds, etc. Considering the difficulty of diagnosing myocarditis, these cases are not very convincing as evidence that trauma may induce fibrillation in an apparently healthy heart. But perhaps more curious still are the published electro-cardiograms. There are five electro-cardiograms published, taken from three patients. Fig. 1 shows extra-systole, preponderance of left ventricle, and a slurring of R. Now, extra-systole in itself is not of great importance, but when it appears in conjunction with fibrillation it usually signifies a damaged heart muscle. Fig. 5 shows right branch bundle lesion and extra-systole—denoting a grave condition of the myocardium. It will be seen that out of a total of three cases two are demonstrable by means of electro-cardiography alone to have had definitely damaged hearts. It is curious that the authors should rely on these cases to support their thesis that trauma may induce fibrillation in an apparently healthy heart.

There are a number of other statements in the paper in question which I should like to challenge, but I am afraid of trespassing too much on the space of your valuable journal.

To sum up, there is an enormous amount of evidence which goes to show that fibrillation appears only in conjunction with a damaged heart, and there has not been one shred of dependable evidence produced which would suggest that trauma may produce fibrillation in a healthy heart.—I am, etc.,

Liverpool, April 14th. I. HARRIS.

CERTIFICATION OF THE INSANE.

SIR,—Dr. Garratt (April 23rd, p. 779) asks for comments on the remarkable opinions expressed by consulting physicians during the hearing of the case of de Freville v. Dill. When convinced of the patient's insanity it is simply necessary to complete the Government form, carefully obeying the instructions printed thereon. When writing down the facts indicating insanity, it is well to remember that years after the medical man may have to stand in the witness box and be severely cross-examined as to the statements he has written down.

If the reports in the public press are correct, Dr. Russell is alleged to have said that the certifying physician should take the greatest care because his written opinion might

condemn a person to spend his whole life in an asylum. This, of course, shows a deplorable lack of knowledge of lunacy law and of the most efficient safeguards that exist to prevent the detention of a sane person.

As to the suggestion of Dr. Russell that the patient should be confronted with informants, little appreciation is shown of the difficulties that often beset the certifying practitioner, apart from the fact that it is no part of our business to convert a private house into a police court. As a very young practitioner I well remember being called to an hotel where a terrorized waiter gave me a vivid account of how he had been threatened with a revolver by an insane guest. On interviewing the patient I found him suffering from paranoia. As he was still in the possession of the revolver, had I confronted him with the waiter I should imagine a tragedy would have occurred.

During the course of the trial Dr. Hyslop, in reply to Mr. Singleton as to the correct course to be adopted when a raving patient threatens to kill one or more persons, is reported to have replied that the physician should send for nursing aid. Every general practitioner knows what would immediately happen—the nurse or nurses would be promptly shown out of the house.

It seems unfortunate that members of the profession should have to trust to the good sense of a judge to save them from the criticisms of their own colleagues.—I am, etc.,

London, W.1, April 22nd. ERNEST H. GRIFFIN.

TREATMENT OF CARCINOMA BY LEAD COLLOIDS.

SIR,—In the use of lead colloids for cases of inoperable cancer we cannot help feeling that there is far too much alarm lest any immediate reaction should follow such injections.

During the last few years we have given over 500 injections of various lead colloids, all made by the British Colloids, Ltd. At first certain of these caused considerable reaction, but it must be remembered that they were more or less experimental colloids, designed to provide a suspension of lead of not less than 0.5 per cent. which would keep permanently. The most recent colloids fulfil these demands, and in doses of 15 c.cm. they give no unpleasant reaction. The reaction is what is so badly called "protein shock" and exactly comparable in every way to a malarial seizure. Apart from any discomfort to the patient, we have never supposed nor have we found that they were in any way harmful.

The production of protein shock has been used as a therapeutic measure of great potency in many complaints. Cases of typhoid fever and pneumonia have been cured in twenty-four hours by its use. Other septic conditions and arthritis have been successfully treated by protein shock. One of us has treated severe cases of asthma by its use, injecting 50 to 100 million coliform organisms into the blood stream.

Of far greater importance is the avoidance of lead colic, vomiting, and other symptoms of lead poisoning. We have followed the teaching of Professor Blair Bell and avoided using such soluble salts of lead as the lead iodide. For this reason the present colloid we use is made in an atmosphere of hydrogen to avoid the possibility of the toxic lead hydroxide being formed.

Several colloids are now being made in which lead is combined with other metals and with organic bases. As it takes at least a year to form an opinion on the therapeutic value of any new colloid, the process is a slow one, but it is hoped that the great work which Professor Blair Bell has commenced may eventually lead to the discovery of some combination of lead that will be of the maximum therapeutic value.—We are, etc.,

FRANK COKE.
J. B. COOK.

London, W.1, April 25th.

THE OPERATION OF TONSILLECTOMY.

SIR,—May I be permitted to reply to the criticisms which appeared in your issue of April 9th (p. 702) anent my memorandum on "The operation of tonsillectomy," which was published on March 26th (p. 564). I quite agree with Mr. Whale that ambidexterity is a priceless asset in most things surgical, but my memorandum was intended to apply to tonsillectomy with the guillotine and mainly in relation to institutional work. I think most surgeons will agree that the guillotine is for obvious reasons the best instrument for that class of work; nevertheless, I am much obliged to Mr. Whale for his hints.

In reply to Mr. Horgan, I may say that I have not read the article he refers to as having been published in the *Practitioner* for August, 1925. What I had to say was an exact description of the method employed by me for many years, and was written in the presence of, and with the collaboration of, Dr. M. McLeod, who has anaesthetized the 3,000 patients mentioned. Further, as the removal of adenoids does not occupy more than about another five seconds, it seems scarcely worth while not to complete the whole operation before lowering the patient's head below the level of the operating table.

Such an incident as blood running down the larynx has never occurred in any of my cases, and I believe it is a bogy.—I am, etc.,

ALFRED J. S. ROE,
Honorary Aural Surgeon, Hull Dispensary.

April 21st.

PATH OF INFECTION IN TUBERCULOSIS.

SIR,—I find that in your issue of April 23rd (p. 762), under "Reports of Societies," one or two slight inaccuracies have crept into the summary of my remarks at a meeting of the North-Western Tuberculosis Society on March 31st last. I hope that you will allow me to correct the few ambiguities to which I refer.

I am made to say that "in 'natural' tuberculosis the tuberculin test produced negative or slight reaction; in 'modified' tuberculosis there was a marked reaction." What I really said was "that 'natural' tuberculosis occurred chiefly in communities where the tuberculin test was negative in the majority of the population; whereas 'modified' tuberculosis tended to occur where the percentage of the population reacting to tuberculin tests was high."

In the sentence commencing "To sum up, the evidence was inconclusive," etc., what I really said was as follows:

"To sum up, the evidence could not be regarded as conclusive in either direction, but two things were certain—namely, that pulmonary tuberculosis was sometimes due to a reawakening of a previous infection; and, secondly, that the evidence pointed definitely to the danger of reinfection from outside, under certain circumstances, even in those already possessing a certain degree of acquired immunity. In such cases the tuberculosis due to the secondary reinfection would be of the ulcerative and chronic type."

Again, the sentence "Professor Cummins believed that both types of infection occurred" should have been as follows:

"While Professor Cummins believed that both paths of infection were capable of leading to pulmonary tuberculosis, he regarded it as certain that the respiratory path of infection was far the commonest cause of this type of tuberculosis, at least in man."

In discussing Bacmeister's experiments I did not say that they were unsatisfactory, but that they were not a certain proof that lymph stasis had been more operative at the apices than elsewhere, as the blood circulation as well as the lymph circulation was restricted.

The last sentence, referring to silicosis in coal miners, should have ended as follows:

"Professor Cummins found that in these latter men the lymphatic blockage led to a greater collection of coal dust at the apices than in other parts of the lungs, but the number of cases examined was insufficient to justify final conclusions."

I fully realize the difficulty of reproducing the exact words or even the exact sense of an address such as that delivered by me at Manchester. While paying every compliment to the reviewer, I think, however, that it is advisable to correct these few obscurities, as the question under discussion was one of considerable importance.—I am, etc.,

Cardiff, April 25th. S. LYLE CUMMINS.

Obituary.

JOHN WHERRY WILLSON, L.R.C.P., M.R.C.S.,

Ex-Chairman of the Bradford Division of the British Medical Association.

DR. JOHN WHERRY WILLSON, who died on April 17th at the age of 59, received his medical education at Charing Cross Hospital, where he obtained the diplomas of M.R.C.S., L.R.C.P. in 1892. He began practice in Bradford some thirty years ago, and took an active part in the work of the British Medical Association and the Bradford Medico-Chirurgical Society. He was joint honorary secretary of the Bradford Division from 1909 to 1913, honorary treasurer from 1909 to 1919, and chairman in 1920. Upon his election to this last post he delivered an address entitled "Celebrated Yorkshire physicians," which contained many interesting historical references. He was a member of the Executive Committee of the Bradford Division from 1921 to 1923, and of the Division Ethical Committee from 1907 to 1909 and from 1922 to 1923. He was a member of the Yorkshire Branch Council from 1911 to 1912 and from 1920 to 1923. At the time of his death he was a member of the Executive Committee of the Harrogate Division. In 1924 he was elected president of the Bradford Medico-Chirurgical Society, and his inaugural address upon "Old Age" was considered a triumph of shrewd observation, apt quotations, and wise conclusions. Dr. Willson played a prominent part in the National Health Insurance controversy of 1911-12; and, from its inception until he left Bradford, he was a regular member of the Local Medical and Panel Committee. During the war his work as secretary of the Local Medical War Committee was of special excellence. He is survived by his widow.

A colleague writes: Dr. Willson was indeed the silver-tongued orator of the profession in Bradford. His flow of language, his clear enunciation, and his grasp of facts commanded the admiration of all. None of those who heard his address on "Meddlesome Midwifery" can forget the masterly exposition of his views, the statistical data, and the sagacious comments, all couched in beautiful phrases and delivered with easy grace and unchecked eloquence. He was a man of great literary and artistic taste and a wide reader, whose retentive memory made literature a joy to him. To his work in connexion with the Local Medical War Committee we largely owe the fact that in the area of the Bradford Division the task of fulfilling the Government's requirements proceeded so smoothly and with such general satisfaction. As a practitioner Dr. Willson gained the confidence of a large body of patients. He was a loyal and trusty colleague, a steadfast friend, and a very perfect gentleman. At the conclusion of his address upon "Old Age" he said: "Let us, with 'confidence born of the past,' meet the future with hope and good cheer, and with trust that whether our day end early or late, it may for each one of us be 'light at eventide.'" His last long illness was borne uncomplainingly, cheered by the hope that was in him.

DR. CAROLINE MATTHEWS, who died at Sydenham on April 16th, aged 49, received her medical education at the Edinburgh Medical College for Women, and graduated M.B., Ch.B.Ed. in 1903. Much of her professional life was spent on the Continent, and for her services in connexion with the Messina earthquake in 1908 she received King Victor Emmanuel's medal; in 1911 she was awarded the Italian Red Cross medal and King Victor Emmanuel's Commemoration medal. During the Balkan war of 1912-13 she acted as war correspondent to the *Sphere*, and held the rank of surgeon in the Montenegrin army, being awarded the Order of Danilo. At the outbreak of the last war Dr. Matthews joined the Serbian army, and when it retreated she remained in charge of the military hospital at Uzsitsi, being taken prisoner by the Austrians and imprisoned in Belgrade. After the war she spent much time in travelling, chiefly in India. Her publications included *Hints by a Lady Doctor* (1905) and *Experiences of a Woman Doctor in Serbia* (1916); she contributed an article entitled "In the hands of the enemy" to the *Sphere* in the latter year.

The following well known foreign medical practitioners have recently died: Dr. ANTONIO CARLE, professor of clinical surgery at Turin, aged 72; Dr. PERRIOL, director of the Medical School at Grenoble; Dr. LOUIS SCHNYDER of Berne, president of the Swiss Society of Neurology, aged 59; Professor HEVEROCK, a neurologist of Prague; Professor A. GILBERT, a leading Paris physician on the staff of the Hôtel-Dieu, joint editor of a system of medicine, and director of *Paris médical*; Professor FRIEDRICH GÖPPERT, director of the Pediatric Clinic at Göttingen; Dr. SALOMON EHRMANN, a Viennese dermatologist; and Dr. FRIEDRICH MERKEL, a gynaecologist at Nuremberg.

Medico-Legal.

PROSECUTION UNDER THE DANGEROUS DRUGS ACTS.

Definition of Legally Qualified Medical Practitioner.

THE stipendiary magistrate (Lord Ilkeston) at the Birmingham Police Court, on April 14th, inflicted a fine of £10, and £5 5s. costs, upon Alfred Arthur Austin of Edward Road, Moseley, Birmingham, on charges of attempting to obtain, and of being in possession of, dangerous drugs, he not being a person authorized or licensed in accordance with the Dangerous Drugs Regulations. Six further charges of being concerned in the supply of drugs on prescriptions signed by him to a Mrs. Ariss, since deceased, were dismissed on the ground that there was not sufficient evidence.

Mr. Joseph Edward Gascoyne, manager to Linells, Ltd., of Balsall Heath, stated that on five separate dates between 1922 and 1923 he supplied solution of cocaine to Mrs. Ariss on the defendant's prescription, and that in September, 1925, he personally supplied the defendant with a preparation containing morphine. The witness admitted that in March last he discussed with the defendant a recent prosecution of a person whose name had been removed from the *Medical Register*. The defendant seemed to be in doubt and had approached him in an inquiring spirit.

The defendant, in evidence, said he was qualified in 1887, being L.R.C.S.I. and L.A.H.Dublin, and on either of these qualifications he was entitled to practise surgery and medicine. He admitted that in 1913 his name was removed from the *Medical Register*, but he submitted that registration was not compulsory and he was not subject to any penalties for practising. The only drawback to not being registered was that he could not give death certificates which would be accepted by a registrar, and that he could not recover fees in a court of law.

Mr. P. W. Williams (the defendant's solicitor) argued that the defendant answered to the description of a duly qualified practitioner in accordance with the regulations and had committed no offence; but Mr. Pugh (the prosecuting solicitor) argued that under the Medical Act of 1858 to be duly qualified a medical man must be registered.

The stipendiary said he was satisfied that the defendant was not a legally qualified medical practitioner as he was not on the *Medical Register*. He would therefore fine the defendant £10, with the addition of £5 5s. special costs on the summons relating to being in possession of drugs.

The Services.

NAVAL VOLUNTEER DECORATION.

THE Royal Naval Volunteer Reserve Officers' Decoration has been conferred upon Surgeon Commander J. B. Ronaldson.

INDIAN MEDICAL SERVICE DINNER.

THE annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant on Wednesday, June 15th, at 7.15 for 7.30 p.m. Major-General R. W. S. Lyons has been invited to take the chair. Tickets and all particulars may be obtained from the joint honorary secretary, Colonel J. J. Pratt, I.M.S. (ret.), 18, Nevern Mansions, Warwick Road, London, S.W.5.

DEATHS IN THE SERVICES.

Colonel Arthur Stephen, Bengal Medical Service (ret.), died suddenly at Ealing on April 22nd, aged 83. He was the son of Arthur Stephen of St. Cyrus, Kincardine, and was educated at Aberdeen, where he graduated M.A. in 1864, and M.B. and C.M. with honours in 1867. Immediately after graduation he entered the I.M.S. as assistant surgeon, passing into Netley first. He attained the rank of surgeon colonel on May 17th, 1894, and retired on May 19th, 1899. He served in the Abyssinian campaign of 1868, receiving the medal, but spent most of his service in civil employment in the Punjab, the last five years as Inspector-General of Civil Hospitals in that province.

Fleet Surgeon William Frederick Spencer, R.N. (ret.), died at Forest Hill, London, on April 15th, aged 79. He was educated at the Carmichael School, Dublin, and at Queen's College Galway, graduating M.D. and M.Ch. of the Queen's University, Ireland, in 1872. Soon after, he entered the navy as surgeon, and attained the rank of fleet surgeon on July 2nd, 1893. He served as surgeon of H.M.S. *Thalia* in the Egyptian war of 1882, and received the medal and the Khedive's bronze star.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons reassembled on April 26th, when the Budget resolutions were discussed on the Report stage. The additional patent medicine duty resolution proposed that the additional excise duty imposed by the Finance Act of 1915 should be made permanent. An amendment, in the names of Sir R. Hamilton, Mr. Harris, and Mr. Duckworth, limiting the effect of the resolution, was ruled out of order. Lieut.-Commander Kenworthy urged that as poor people, who could not afford a doctor, bought patent medicines, the duty would be a tax on the sick and ailing poor.

Mr. McNeill said that the income from the duty last year was £1,340,000, a sum not to be despised in a time like the present. The additional duty was being made permanent, because experience had shown that these commodities could well bear the tax without decreasing their consumption. Since 1915 the yield from this duty had gone up nearly four times. Last year an interdepartmental committee had considered whether any better and more convenient form for the definition of the tax could be found, but recommended that the charging words under the old statute were really as useful, for the purpose in view, as any that could be put in their place. The tax was originally, and still was in principle, a tax on quack medicines. No real medicine recommended by a qualified medical practitioner, or which, coming under certain definitions, was supplied as ordinarily part of the *British Pharmacopœia* by druggists, came under the tax at all. The resolution was carried.

On the following days debate on the Budget was continued.

Universities and Colleges.

UNIVERSITY OF LONDON.

LONDON HOSPITAL MEDICAL COLLEGE.

A LECTURE on recent medical and dental research on accessory food factors in relation to diseases of the teeth will be given by Dr. J. Sim Wallace at the London Hospital Dental School on Monday, May 9th, at 5 p.m. Members of the profession and medical and dental students of the hospital are invited to attend.

UNIVERSITY OF BIRMINGHAM.

UNDER the William Withering memorial lectureship a course of ten lectures on organic inheritance in man is being delivered by Dr. F. A. E. Crew, F.R.S.E., in the large theatre of the medical school buildings of the University of Birmingham. The first was delivered on April 27th and the last will be given on June 2nd. Members of the medical profession are invited to attend. Admission cards can be obtained on application to the Dean.

UNIVERSITY OF GLASGOW.

THE following degrees were conferred on April 23rd:

M.D.—*R. L. Mackay, †D. M. Lindsay, †J. Lindsay, Grace M'Lintock, P. O. Moffat.
CH.M.—*J. R. Learmonth.
B.SC. (*in Public Health*).—R. L. Leask.

M.B., CH.B.—The degrees of M.B., Ch.B. were conferred upon the 57 successful candidates whose names were published in our issue of April 16th (p. 748).

* With high commendation.
† With commendation.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine*: V. H. L. Barlow, J. G. Buchanan, E. C. Davies, J. B. Forrester, T. Kelarkar, B. F. Lewin, A. C. Lovett-Campbell, H. J. Marcelin, F. X. Oliveiro, S. K. Ponniah, S. T. Sodah, C. E. Vaz. *Surgery* G. R. Day, M. M. Fargkaly, G. R. Gardner, Alice Law, B. F. Lewin, P. M'K. Logan, Dorothy J. O. Mitchell, W. B. Russell, M. M. Wright. *Midwifery*: E. P. N. Abeyesundere, G. R. Day, A. S. Gordon, Alice Law, P. M'K. Logan, A. C. Lovett-Campbell, Eileen M'Cabe, N. Macleod, H. J. Marcelin, J. E. D. Mendis, Dorothy J. O. Mitchell, F. X. Oliveiro, R. G. Paranjape, S. K. Ponniah, M. M. Wright, V. Simetamby, C. E. Vaz. *Medical Jurisprudence and Public Health*: E. P. N. Abeyesundere, A. J. F. Almeida, J. H. Brush, J. Campbell, J. L. Dudgeon, J. B. Forrester, A. Jacorovitch, A. el Sayed el Khishin, Dorothy J. O. Mitchell.

Of 86 candidates entered, the following passed the Final Examination and have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glas.:

Rosie Swamikan, J. J. Craig, J. Williams, V. Nath, T. G. Macintyre, M. Clayton-Mitchell, J. Hall, A. B. Paul, A. B. Gilston, K. Dhar, J. S. Fernando, H. A. Erickson, O. S. Crowther, V. Dorasamy, W. C. M'Laren, J. Gilchrist, O. Dawood, K. S. Rao, J. T. Amaravingham, M. Ponnambalam, W. J. Cudahy, A. Lipschitz, K. Cathiravelu, J. P. M. Donnelly, Elizabeth Bell, D. S. Johnston, T. de Silva, S. Kramer, R. Abrahams.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—L. G. Apps, P. Brookes, W. H. Collins, A. F. J. D'Arcy, W. Howard, S. B. S. Smith, L. Wasef.
MEDICINE.—D. K. Reynolds, S. K. Rigg.
FORENSIC MEDICINE.—J. Bramall, C. M. Brooks, J. A. Fernandez, W. D. Neill, D. K. Reynolds.
MIDWIFERY.—P. Brookes, R. P. Charles, W. Howard, H. S. Marks, B. Rosenzvit, S. B. S. Smith, M. A. Yousef.

The diploma of the Society has been granted to Mr. L. G. Apps.

Medical News.

A MEDICAL congress under the name of Journées Médicales d'Egypte, organized by *La Revue des Maladies des Pays Chauds*, will be held at Cairo this year from December 15th to 24th, under the joint presidency of Professors J. L. Faure and A. Loufti el Sayed. The vice-presidents are Professors Andrew Balfour, Aldo Castellani, and J. W. W. Stephens. Various diseases of temperate and warm climates will be dealt with, including liver abscess, bilharziasis, trypanosomiasis, Oriental sore, leprosy, kala-azar, trachoma, malaria, yellow fever, and Malta fever. French and English will be the languages used for the congress. It will consist of the following sections: ophthalmology, of which Colonel R. H. Elliot is president; medicine, surgery, pathology, bacteriology, urology, gastro-enterology, hygiene, pharmacy, parasitology, dermatology, diseases of the ear, nose, and throat, pediatrics, obstetrics, neurology, tuberculosis, and veterinary medicine. There will be an international exhibition illustrating the application of science to medicine, surgery, pharmacy, and hygiene. In connexion with the congress special terms will be obtainable from steamship and railway companies. Further details about the congress may be obtained from the general secretary, Dr. Zeitoun, 32, rue Gay-Lussac, Paris, Ve., to whom notice of papers to be contributed should be sent before October 1st.

THE St. Mary's Hospital Institute of Pathology and Research has arranged a course of lectures on pathological research in its relation to medicine, to be given during the summer session on Thursday afternoons at 5 o'clock. The first, on May 5th, will be by Professor Carl Prausnitz, of the Institute of Hygiene, Breslau, who will deal with the bacteriophage. The second (May 12th) will be given by Dr. R. A. O'Brien, Director of the Wellcome Physiological Research Laboratories, who will discuss streptococci, their toxins and antitoxins; the third (May 19th), by Lieut.-Colonel S. P. James, M.D., I.M.S., Adviser on Tropical Diseases to the Ministry of Health, will be on malaria research; the fourth (May 26th), by Professor Hugh Maclean, on insulin; the fifth (June 2nd), by Professor Lovatt Evans, M.B., F.R.S., of University College, on the alkalinity of the blood; and the sixth (June 9th), by Professor B. J. Collingwood, on the molecular movement in the living blood. The lectures are open to all members of the medical profession and to all students in medical schools without fee.

THE Fellowship of Medicine announces that Mr. Goulden will give a demonstration at the Royal London Ophthalmic Hospital on May 3rd at 1 p.m.; this demonstration is free to medical practitioners. A series of clinical and cytoscopic demonstrations will be given at the All Saints' Hospital, Vauxhall Bridge Road, S.W., from May 2nd to 28th, and on each Wednesday during the four weeks a special lecture will be delivered at 2 p.m. The Maudsley Hospital will hold during the same period an afternoon course in psychological medicine, including demonstrations of the pathology of mental diseases, clinical psychiatry, and the psychoneuroses. From May 4th for four weeks there will be a course at the London Lock Hospital, comprising clinical teaching and a series of lectures. On successive Wednesdays from May 4th to 25th inclusive Professor McIlroy will give lecture demonstrations on ante-natal diagnosis and treatment. An intensive course will be arranged at the Central London Throat, Nose, and Ear Hospital from May 9th to 28th, covering all departments of laryngology, rhinology, and otology; as the entry for the operative part of the course is limited early application is desirable. From May 9th to July 15th the National Hospital, Queen Square, will hold a course comprising clinical lectures and demonstrations, teaching in the out-patient department, pathological demonstrations and lectures, a course in anatomy and physiology, and one in methods of examination. Commencing on May 16th a fortnight's course will be held at the Hampstead General Hospital; it will consist of medical, surgical, and specialty demonstrations primarily for general practitioners. Copies of all syllabuses, the general course programme, and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

A SPECIAL course in infants' diseases will be given at the Infants Hospital, Vincent Square, on the afternoons of May 16th to 28th, for medical officers of welfare centres and those who are interested. In addition to lectures, round table consultations, and clinical demonstrations, visits will be paid to a model pasteurizing plant, a venereal diseases centre, and homes for infants. The fee for the course is three guineas, and those wishing to attend should send early notification to the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1, since the course is limited to fifteen.

AT the quarterly meeting of the Welsh National Memorial Association at Chester last week certain reports on the Spahlinger treatment were presented. The medical committee expressed the view that the published records and statistics of cases treated by the Spahlinger remedies were not nearly complete or precise enough to allow of a scientific estimate of the results obtained. On the whole the committee were of opinion that they were disappointing. The remedies, it was said, did not offer a "certain" cure for tuberculosis, and conclusive evidence had not been forthcoming that they had materially altered the course of the disease. The committee did not recommend the application of public or other funds to the Spahlinger Institute.

A COURSE of lectures and demonstrations in surgical urology will be held at Necker's Hospital, in Paris, from June 8th to 18th. It will include practical work on the cadaver and the use of instruments. The inclusive fee is 1,000 francs, and further information may be obtained from Dr. Fey, 151, rue de Sèvres, Paris.

THE British Social Hygiene Council will hold a summer school at Keble College, Oxford, from August 3rd to 9th. A course of lectures on biology and social hygiene will be given by Professor J. Arthur Thomson, and one on psychology and social hygiene by Dr. H. Crichton Miller. Further information may be obtained from the secretary of the British Social Hygiene Council, Carteret House, Carteret Street, S.W.1.

IN aid of the rebuilding fund of the Royal Westminster Ophthalmic Hospital a luncheon will be held at the Savoy Hotel on May 4th, when the prospects of the hospital will be described by the Earl of Clarendon, Sir Richard Cruise, and others.

THE new laboratories of the Metropolitan Asylums Board at Park Hospital, Hither Green, S.E.13, will be opened by Mr. Neville Chamberlain on May 9th, at 3.15 p.m. These laboratories will be the headquarters of the Board's research and pathological work.

SIR BERKELEY MOYNIHAN, Bt., P.R.C.S., has been appointed a Deputy Lieutenant of the West Riding of the County of York and of the City and County of the City of York.

WE are asked to state that correspondence for Professor Lyle Cummins should in future be addressed to the Tuberculosis Department, Institute of Preventive Medicine, The Parade, Cardiff.

THE newly formed South Wales Medical Golfing Society will hold its first meeting at the Southerndown golf course on Thursday, May 5th, when play will take place for the Alfred Miles cup. All medical men in South Wales (comprising Glamorganshire, Cardiganshire, Carmarthenshire, Pembrokeshire, and Breconshire) and in Monmouthshire are eligible. The competition for the Treasurer's Cup of the British Medical Association will take place at the same time among members of the Cardiff, North Glamorgan, and Brecknock Divisions; the final stage of this competition, it will be remembered, is to be played at the Annual Meeting of the British Medical Association at Edinburgh on July 22nd. Full particulars can be obtained from Dr. T. Garfield Evans, 127, Cathedral Road, Cardiff.

THE final of the Medical Golfing Society's knock-out tournament was won by J. Cunning, the runner-up being E. Playfair.

IN view of the proposed new motor legislation the Automobile Association recently addressed a series of questions to motorists throughout the country. Replies were received from nearly 100,000. Ninety-seven per cent. were in favour of reverting to a petrol tax in place of the present taxation based on the horse-power of cars. The abolition of the twenty-mile speed limit was supported in 92 per cent. of the answers received; 81 per cent. favoured the abolition of ten-mile limits. In various questions of smaller importance the percentage was about the same. The highest percentage—98—was in favour of special legislation to penalize the joy-rider; from which it would seem that many motorists must have suffered from this irresponsible person.

PROFESSOR HERMANN LUDWIG WINTZ, director of the gynaecological clinic at Erlangen, has been invited by the Radiological Society of North America to deliver addresses before several American universities on the *x*-ray treatment of carcinoma.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the BRITISH MEDICAL JOURNAL are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

"A SUFFERER" from cold and clammy hands asks for advice.

HABIT-SPASM IN A CHILD.

DR. JULYAN HOYTE (Elisabethville, Katanga) asks for suggestions as regards the prognosis and treatment of intractable habit-spasm in a little girl, aged 2½. When put to bed the child very often raises herself into the knee-elbow position and commences to sway her body backwards and forwards, the head striking the pillow sharply at each forward swing. She repeats this for two or three seconds for long intervals, sometimes continuing it for two hours, with brief rests, before falling asleep. Occasionally she goes to sleep normally, but rouses later to perform the bumping process. Punishment at the time seems to have no effect, but if administered during the next day it has some deterrent action. In other ways the child is normally developed, though rather slow in talking, a characteristic frequently noticed in the children of Europeans in the neighbourhood who grow up hearing two languages spoken. She has had two severe attacks of malaria, both accompanied by convulsions, but the first occurred some time after the habit-spasm commenced, which was about the age of 6 months.

READING FOR THE BLIND.

"J. A. H." wishes for information regarding the teaching of Braille type for the blind.

*** A child of school age would be taught this script at some school for the blind carried on by or with the co-operation of the local education authority. Under the Education Acts the local education authority is responsible for this, and now also for the training of blind persons over school age. For an independent person wishing to learn Braille the best way to obtain the necessary information and equipment would be to apply to the National Institute for the Blind, Great Portland Street, London, W.1. The Institute will supply instruction books, writing boards, and so forth. It has local branches through which the learner can arrange for "home teaching" by approved teachers. The Institute issues Braille-printed newspapers and literature suitable for the general reader and the serious student.

THE CHEWING OF GUM.

DR. W. W. HARDWICKE (London) writes: In reply to Dr. W. J. Burns Selkirk (JOURNAL, April 9th, p. 708), there can be no analogy between the normal and the abnormal. The desire to suck in the infant and the chewing of the cud in the cow are normal acts. The chewing of gum (wax) in the human youth or adult is not normal, but an acquired and disgusting habit, similar to the desire in the greedy to be continually gratifying the palate by eating or drinking. All bad habits have a soothing effect, or they would never have existed, but this fact does not justify their existence, or do away with the bad effects of them—in this instance the premature wearing out of the overworked salivary glands. The overstrain of these glands must tend to shorten their lives of usefulness, resulting ultimately in digestive trouble, and the hypertrophy of the masseter muscles, in an ugly deformity of the cheeks.

INCOME TAX.

Deduction for Surgery.

"E. H." now uses solely as a surgery a house in which he formerly resided. A woman, with her husband and one child, lives there and acts as caretaker. She receives no wages, but lives free of rent, rates and gas, coal and electricity.

*** "E. H." can deduct the whole cost of rent, rates, light, and heat as a professional expense, but not, of course, any expense borne *by the caretaker* in keeping the premises clean.

Car Replacement and Basis of Assessment.

"R. P." bought car A in June, 1925, for £140 and sold it in May, 1926, for £90, buying car B for £125; he commenced practice as a consulting physician on his own account in October, 1924; can he claim the benefit of the three years' average?

*** He should claim, as an expense of the year 1926-27, £125–£90=£35 obsolescence allowance, and for the year 1927-28 a depreciation allowance of 20 per cent. of £125—that is, £25. The assessment for the period October, 1924, to April, 1925, should be on the basis of the actual earnings, for the year to April 5th, 1926, on the earnings of his first year, for 1926-27 on the average of the earnings of his first two years, and for 1927-28, when the average basis disappears, on the basis of the earnings of 1926-27.

LETTERS, NOTES, ETC.

DEATH BY LIGHTNING STROKE.

DR. ESPINE F. WARD, of the West African Medical Staff, sends particulars of the death from lightning on November 24th, 1926, of fourteen native women, whose ages ranged between 15 and 35. Some four hours after the accident he found the women lying dead in the village market place under a light shelter, which consisted of a few uprights supporting a galvanized iron roof 5 ft. 6 in. high. One other woman, who showed signs of life but was unconscious, was transferred to hospital twelve miles away, and subsequently made a good recovery. She left hospital twenty-four hours later of her own accord, complaining, however, of pains in her legs, giddiness, and difficulty in walking, but was unwilling to remain longer under treatment. Two other women, who had also been of the party, had already recovered, and were apparently none the worse, except for vague general pains.

Dr. Ward writes: "I was told that one of the dead women had had her six months old baby strapped on her back; after her death the baby had been rescued by friends and was none the worse for the ordeal, but I did not see the baby nor could I get any further particulars about it. The light shelter was about 12 ft. square and the women had been seated in a circle on the ground, looking inwards. All the bodies were found lying on their backs, evidently having fallen backwards after the shock, their feet pointing inwards. The position of the bodies was very much the same in all cases, although one or two had evidently fallen against one another when killed and lay across each other. In all cases the pupils were widely dilated and rigor mortis had set in; the clothes of all were wet, but showed no signs of injury, and the ground around was soaked by rain, the women lying in puddles of water. There were no signs of burning or of any injuries on the bodies, and although all of them had sums of money in coin tied in their waistbands, the coins were not affected. Five of them had frothed at the mouth; in several cases the hands were clenched and the arms flexed. No *post-mortem* examinations were made. I was informed that heavy rain had fallen during the afternoon; it was not possible to say whether the lightning occurred during the rainstorm or preceded it. When the women were seen to be apparently dead the people in the market all ran away; some returned later, and it was then seen that the two women were recovering. They were then unable to walk and were carried away by their friends. Nothing was done for the rest, although it transpired that one had shown signs of life. I think it is highly probable that many others might have been saved also if first aid had been available sooner, but, left as they were in their wet clothes on the wet ground, the opportunity had passed. The market is on laterite soil, about seventy yards square, covered with little shelters and with many trees scattered about; it probably contained some three hundred people at the time of the accident. No trees were more than 30 ft. high. Neither the shelter itself nor any of the trees showed any signs of having been struck. The bodies were removed to the mortuary in a motor lorry. The driver refused to drive the lorry, as there was a prevalent belief that anyone removing the bodies before the 'juju' had been appeased by a ceremony of purification by the 'thunder women' would die within a week. However, the European manager of the local transport company drove the bodies to the mortuary, in spite of the warnings he also received. Three days later he was admitted to the European hospital at Accra and died on the Tuesday evening following from yellow fever, after three days' illness. This strange coincidence admits of only one explanation to the native mind.

"It is difficult (Dr. Ward adds) to advance any theory how the electrical discharge caused these fatalities, because the natives were very reluctant to give information of what they regarded as a powerful 'juju' (afterwards so unfortunately confirmed in their minds by the death of the driver). The whole circumstances provide another instance of the peculiarity of lightning, and I suggest that in this case these fatalities were due to the people forming the opposite pole of a condenser to the corrugated iron, which had become highly charged by induction before the storm broke; they thus provided paths for the current. These particulars are given with the kind permission of the Director of the Medical and Sanitary Services."

THE OPERATION OF TONSILLECTOMY.

DR. PATRICK LEIGHTON (Mottingham) writes: I have read with much interest the letters recently published on ambidextrous enucleation of tonsils with the guillotine.

For years, in over 2,000 cases, I had used both hands, using the forefinger of one to push the tonsil through the ring, but after accidentally buttonholing the palate and removing the skin of the end of my own finger, it occurred to me to use the thumb, with far better results. The reason was that the thumb, being larger, did not penetrate the ring. The anaesthetist should be armed with a swab on a sponge forceps, which is pressed into the cavity for a few seconds the moment the tonsil is removed. In this way a clear view of the other tonsil is obtained. A Sluder Ballenger guillotine No. 1, made by Gardner of Edinburgh, gives me every satisfaction.

The above remarks refer to ethyl chloride anaesthesia, when the complete operation should take about 25 seconds. I agree with Mr. H. L. Whale that both hands should be used in the dissection operation.

SMALL-POX AND VACCINATION.

LIEUT.-COLONEL A. BUCHANAN, M.D., I.M.S.(ret.) (St. Jacques, Guernsey), in the course of a communication on this subject, writes: When a bad attorney has a weak case he sometimes sets up a false issue, and then proceeds to "knock the bottom out of it." In a similar way Dr. Killick Millard shows (JOURNAL, February 12th, p. 306) that the occurrence of 6,000 cases with 500 deaths—I am giving round figures—in a city where 98 per cent. of the population had been vaccinated is a proof of the unreliability of infant vaccination to protect the community. But no one has, as far as I am aware, asserted that infant vaccination affords lifelong protection. Dr. Millard himself stated in the same paragraph that it has been conclusively proved, over and over again, that vaccination confers temporary protection upon the individual. It follows that if all individuals in a city were vaccinated and revaccinated the community would be protected. Professor Wynne had shown (February 5th, p. 261) that the great majority of those who had been attacked, although "officially vaccinated," were actually unprotected by vaccination. Professor Wynne pointed out that "modern measures" had failed, and Dr. Millard thinks that it is a little too early to abandon hope, for he finds that in three weeks in January there were not more than 277 cases of small-pox in Sheffield. It would be interesting to know how many cases would have to occur before Dr. Millard would resort to the method of protection which he admits has been conclusively proved, over and over again, to confer temporary protection.

A WARNING.

DR. C. B. MOSS-BLUNDELL (county medical officer of health, Huntingdon) writes: It is reported to me that a man who may give the name of Dr. Winter has been calling on professional men, particularly doctors and accountants, soliciting help. He may describe himself as an accountant and may say that he is an old Rugby and Oxford man, and has acquired a certain amount of information about these two places. He suffers from pulmonary tuberculosis and may state that he has been at Yardley Road, Lenham, or Papworth Sanatorium, the latter statements being true. He has lately been "working" the Oxford-Slough area. He is about 33, height 5 ft. 5 in., of spare build, with bushy eyebrows, and rather penetrating downcast eyes. When he left this district he was dressed in a dark grey suit and Trilby hat. I should advise doctors to take necessary precautions should he call on them.

SPINAL ENDOTHELIOMA.

MR. J. R. LEARMONTH (Glasgow) writes with reference to the note on his paper on spinal endothelioma, published in our issue last week (p. 768), to state that "the work on the transplantation of the cerebral vesicles of *Amblystoma punctatum*, to which you refer in your notice of my paper on spinal leptomeningioma, was carried out, not by Harrison, but by Professor S. C. Harvey and Dr. H. S. Burr of Yale University (vide *Arch. Neurol. and Psychiat.*, 1925)."

A CORRECTION.

IN Mr. Duncan C. L. Fitzwilliams's article on page 758 of the BRITISH MEDICAL JOURNAL the last word in the second paragraph should have been "iodide," and not "iodine."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 38, 39, 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *187*.

Modern medicine needs modern industry

GLANOID
MEDICINAL PRODUCTS
of
ANIMAL ORIGIN

The Armour Laboratory has always kept pace with the Medical Profession by quickly meeting demands for *scientifically dependable therapeutic supplies of animal origin.*

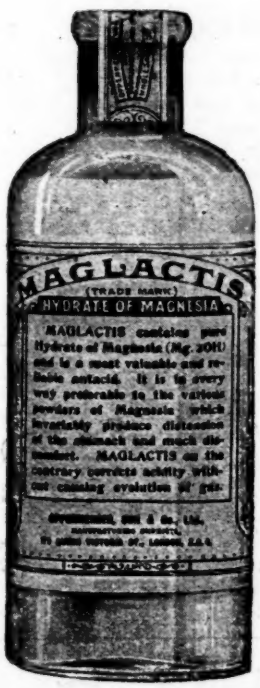
For a third of a century this inimitable institution, with practically unlimited supplies of fresh organic material at hand, has been anticipating the increased needs of Physicians, Surgeons, and Hospitals.

Among the best known Organo-Therapeutic products bearing the Armour "Glanoid" label are: Thyroid—Corpus Luteum—Ovarian Substance—Pituitary—Parathyroids—Suprarenal Substance.

Price List and Booklet free.

ARMOUR AND COMPANY LIMITED
Queen's House, Kingsway, LONDON, W.C.2.

Descriptive Literature free.



Derangement of the Stomach

is frequently met with at this season of the year, and in such cases the most effective antacid and corrective is to be found in

MAGLACTIS

(TRADE MARK)

HYDRATE OF MAGNESIA

—a preparation of pure magnesium hydrate in suspension which neutralizes acids without the evolution of gas. In addition to this, its action is continuous, whereas that of the bicarbonates or carbonates of alkalies or alkaline earths is only temporary.

Clinical sample and literature on request.

OPPENHEIMER, SON & CO., LTD. 179, Queen Victoria St., LONDON, E.C.4.

Manufacturers of 'ROBOLEINE,' the FOOD THAT BUILDS THE BODY, the reconstructive Food which has been consistently prescribed for 20 years, and used with the happiest results by Hospitals, Sanatoria, and Welfare Centres.

Please tear this off for future reference.

"STERULES"

(Registered Trade Mark)

FOR

Hypodermic, Intramuscular, and Intravenous Injection.

(Care should be taken to prevent confusion as to use in each instance.)

ACID NUCLEINIC *(hypod. and intram.) for promoting leucocytosis in acute fevers, etc.* ... ... 5%, 1 c.cm.	Box of 10	5/6
ARSENIC AND IRON *(hypod. and intram.), successful in the treatment of anæmia.* ... ... Nos. 1 and 2	„	4/6
Either form with Strych., 1/60 gr.	„	4/6
BISMUTOL (Sodium-Potassium Bismuthyl Tartrate), *for intramuscular injection in syphilis*	„	5/6
CICATRICINE *(hypod.), for removal of cicatricial tissue.* ... ... 1 c.cm.	„	5/6
CURSCHMANN'S CAMPHOR *(hypod.), for the treatment of shock,* 1 c.cm.	„	5/6
EMETINE HCl. *(hypod., intrav., or intram.)* ... ½ gr. 4/6; ½ gr. 5/6; *In amœbic dysentery, often in conjunction with Auremetine.*	1 gr.	10/0
GOLD, COLLOIDAL *(hypod.)* 2 c.cm. *In the treatment of* **Alcoholism** *and the* **Morphine Habit.**	Box of 5	5/6
GLUCOSE SOLUTION, *Conc., for producing 1 pint of 5% solution for intravenous feeding*	each	2/6
GUM SOLUTION *Conc. (intrav.), for surgical shock*	„	2/6
HYDRARG. INTRAMUSC. *Lambkin.* 10 m.	Box of 10	4/6
HYDRARG. SALICYL-ARSENATE *(intram.), for syphilis,* 1 gr. 30 m. ...	„	5/6
INDIGO-CARMINE *(intrav. and intram.), Renal Indicator* ... 1% 10 c.cm.	„	7/6
INJ. CACODYL. CO. *(hypod.),* 1 c.cm.	„	5/6
MANGANESE BUTYRATE *(intram.), in furunculosis, boils, etc.* ... 1% 1 c.cm.	Box of „	4/6
MANNITOL-QUININE *the new basic form of Quinine. On clinical trial only at present* ... ... 2 c.cm.	10	5/6
MERCUROME (R.T.M.). *The new Mercurial. Suggested in plague, leprosy, etc. (Intravenous)* ... ... 0.2 gm.	„	5/6
NOVOCAIN, ½ gr., Adrenalin 1/1,000 gr., *as a local anæsthetic*	„	6/6
PEPTONE FOR ASTHMA, *series of 10 graded doses, Intravenous and Intramuscular. (Further details see special leaflet)*	„	7/6
PHENOLSULPHONEPHTHALEIN *(subcut.) 6 mgr., for kidney permeability test*	„	7/6
PITUITARY *(Infundibular) (intram.),* ½ c.cm. 5/6; 1 c.cm.	„	7/6
QUININE HYDROCHLORO-CARBAMIDE *as a local anæsthetic,* 1% 5 c.cm.	„	5/6
SODIUM CHAULMOOGRATE "C," *(subcut.), in leprosy.* 2 gr. 5/6; 3 gr.	„	6/6
SODIUM MORRHUATE *(subcut. and intrav.), in tuberculosis, leprosy.* 3% 1 c.cm. 6/6, 2 c.cm.	„	7/6
STOVAINE-GLUCOSE, *aa., 5% for spinal anæsthesia,* 1 c.cm. 6/6; 2 c.cm.	„	10/0
STROPHANTHIN *(hypod. and intrav.),* 1/400, 1/250 and 1/100 gr.	„	4/6
THIOSINAMIN COMP. *(Intram., hypod., or intrav.), in treatment of keloid, scar tissue, etc.* 1 c.cm. 5/6; 2.5 c.cm.	„	7/6
TYLCALSIN, *for intravenous injection in acute rheumatic affections* ... 0.5 gm.	„	7/6

For use in the tropics, "Sterules of Distilled Water." Boxes of 10 × 10 c.cm. 3/6 are invaluable for dilution, etc. Other sizes can be made.

"STERULES" for Inhalation.

AMYL NITRITE (containing 1, 2, 3, 4, 5, 6, or 10 minims) Box of 12 3/0

Largely employed in threatened fainting and collapse, and as a restorative after gas in dental operations. For relieving angina pectoris, spasmodic asthma, migraine, post-partum hæmorrhage, hæmoptysis, sea-sickness, to ward off epileptic attacks, etc., and as an antidote to chloroform.

ETHYL IODIDE, 0.3 c.cm. (5 m.). ... ... Box of 8 3/0

In whooping-cough exceedingly useful—the coughing fits are gradually reduced.

ETHYL IODIDE, 0.3 c.cm. (5 m.) ***with Chloroform,*** 0.6 c.cm. (10 m.) ... ... Box of 8 3/0

Of great service in the relief of asthma and in whooping-cough.

TRADE MARK

W. MARTINDALE,

Manufacturing Chemist,

10, NEW CAVENDISH STREET, LONDON, W.1.

Telegraphic Address: "MARTINDALE, CHEMIST, LONDON." Telephone Nos.: LANGHAM 2440 and 2441.

Printed and published by the British Medical Association, at their Office, Tavistock Square, in the Parish of St. Pancras, in the County of London.